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[*Authors alone are responsible for the contents of their respective Papers.*]

SECRETARY'S NOTES.

1. The following officers joined the Institution during the month of August :—

Lieutenant A. Rice, R.N.
Lieutenant D. G. C. Rutherford, R.F.A.
Colonel T. O. W. Champion de Crespigny, late 15th Hussars.
Captain W. S. Brancker, R.F.A.
Second Lieutenant E. M. Sinauer, R.E.
Second Lieutenant A. R. W. S. Clark-Kennedy, Scots Guards.
Second Lieutenant H. H. Liddell-Grainger, Scots Guards.

(No officer of any branch of the Auxiliary Forces joined the Institution during the month.)

2. The building having been closed for cleaning purposes is now open as usual.

3. Considerable progress has been made in the cataloguing of the Museum, some 1,800 exhibits having been described and registered. It is hoped that the collection in the Banqueting Hall will have been completed by the end of the present year, when it is proposed to commence printing the public catalogue.

4. Officers are reminded that the latest date for the reception of Essays for "The Special Military Essay, 1905," Competition is Saturday, September 30th. A few having been received in manuscript, candidates are specially asked to forward their essays type-written and in triplicate.

5. The following Lectures have been arranged for the autumn. When the list has been completed the Lecture Card will be circulated:—

October 19th.—"Thoughts on the Organisation of the British Army," by General Sir Richard Harrison, G.C.B.

October 26th.—"Military Cyclists and the Home Army," by Major R. A. Johnson, 1st V.B. Hants Regiment.

November 1st.—"Field Engineering in the Light of Modern Warfare," by Lieut.-Colonel G. M. Heath, D.S.O., R.E.

November 8th.—"The Toleration of Enteric Fever by the Army: India and South Africa," by H. E. Leigh Canney, Esq., M.D., M.R.C.S.

November 20th.—"The Use of the Motor Car in Warfare," by Captain H. H. Paynter, Motor Volunteer Corps (late R.N.).

6. Officers are reminded of the necessity of communicating to he Secretary all changes of rank or address.

THE COMFORT OF TROOPS ON ACTIVE SERVICE.

By Captain E. D. SWINTON, D.S.O., R.E.

Thursday, 16th February, 1905.

Colonel the Hon. J. T. St. Aubyn, Commanding the Grenadier Guards, in the Chair.

Introductory.

What is understood by comfort.

Consideration of what direction our efforts towards comfort should take.

Efficiency of an Army.

Question of numbers.

Consideration as to the chief cause of wastage in numbers.

Comparative table of the relative wastage in numbers caused by disease and casualties in recent wars.

Consideration of the chief causes of disease.

Conclusion as to the most important points to be considered and their relative importance.

Sanitation the most important, and reasons why.

Two chief diseases affected by sanitation.

HINTS ON DETAILS.

Sanitation, Hygiene, &c.	Water.
	Conservancy.
	Clothes and Equipment.
	Marches and Fatigue.
Shelter.	Bivouacs.
	Tents.
	Huts.
	Entrenchments.
Food and Supplies.	Rations.
	Fresh Meat.
	Cooking.
	Requisitioning and Feeding in Country.
	Supplementary Rations.
	Field Force in Canteen in South Africa.

Moral, and Mental Comfort.

Contributory Causes.

Odds and Ends.

AT first sight the title of this paper may possibly bring back to some of us reminiscences of a luscious list beginning with "Arrowroot," and rioting on through a perfect gamut of luxury such as "champagne, fowls (roast) in lb. tins, port wine, stout and whiskey." This was called "Comforts Medical," and the mere perusal of it was calculated to make the reader's mouth water as he sat on an ant-heap munching a ration biscuit. As, however, we are not dealing specially with the contents of this list, it might appear that our subject is capable of being dismissed in as few words as were necessary to give the historic account of the snakes in Ireland:—"There are no snakes in Ireland," for, from the very nature of the conditions implied, "comfort" in the ordinary acceptance of the term is, during war, chiefly conspicuous by its absence.

My first impulse, therefore, when I was honoured by an invitation to read a paper upon the subject at the Royal United Service Institution, was to request that the title might be changed to "The Discomfort of Troops on Active Service," upon which subject in common, probably, with many of you, I felt competent to enlarge to any extent. "Horrors and hardships" are quite classic phrases when used in connection with war, and even those who have had no practical personal experience have gathered sufficient at second-hand to be able to discourse at length upon such a theme. But however easier the task would be from the point of view of the lecturer, it is open to doubt whether an investigation into discomforts which no one wants or needs would be of such practical value as the reverse. Still, it would be really more exactly accurate to describe the subject of this paper as how best to avoid and mitigate, as far as possible, some of the discomforts of active service.

There are two ways also, in which the problem may be regarded. One is, how to lessen the inevitable hardships and discomforts of war upon the soldier, by hardening him beforehand, and so training him that he will not feel them. The other way, and this is the way in which we shall consider the matter, is, taking the soldier as he is. "How can we best temper the wind to the shorn lamb?" In the current number of the *Revue des Deux Mondes* is an article, entitled, "Le Moral des Troupes," by General Négrier, of the French Army, in which he discusses most instructively the moral effects that the fatigues and hardships (principally of marching) will have upon the comparatively soft reservist, as compared with the soldier who is in better training, and consequently tougher.

After all, comfort is a relative term, and what would be scorned by a man in the fat times of peace will often be welcomed by him on service as a great comfort, or indeed, a luxury. For instance, one who, in London, may have been in the habit of grumbling at the coffee served to him in his club, will, on a cold morning on service, greedily drink so-called coffee made with the oily water from a locomotive boiler—coffee whose only claim to the name is, that it is hot and wet, and possibly dark. Indeed, he would often consider himself very lucky to get that. It is in this active service sense, of course, that the word comfort is used, and also in a comprehensive way to express everything that can be done to improve the lot of the soldier. We will consider the subject more from the point of view of the officer looking after his men than from that of an officer looking after himself. An officer has a certain amount of latitude in fitting himself out, and if he be even to a limited extent a

capitalist, he has the ready co-operation (almost too ready) of all the outfitters and equipment makers in the country in preparing himself, while, at the seat of war, above all places, "money talks." Those who require to know more on this subject I would refer to the latest published information of which I am aware, a very interesting paper in the R.U.S.I. JOURNAL of December, 1904: "Some Notes on an Active Service Kit and Equipment," by Captain R. M. G. Tulloch. This is based on experiences in South Africa, and includes much that is of use to the officer in regard to himself.

Before proceeding to details it will be as well to consider the matter from a broad point of view, and try and ascertain in what directions our efforts at increasing the comfort of the soldier should be made, so that our energies and thoughts may work in the directions most beneficial to the nation as well as to the individual.

The main object of an army in war is to beat the enemy in battle. To effect this a concentration of superior force at the right time and in the right place is necessary. In order to assist in this object, it should be the endeavour of each individual to do his utmost to ensure in every possible way the efficiency of the fighting machine, in that its numbers should be maintained, and its physical, mental, and moral state kept as high as possible. The strategy and tactics of a campaign may be admirably conceived and carried out, and yet the whole operations miscarry if these desired conditions are wanting. The army may be brought to the right place at the proper moment, but may fail in its enterprise, owing to reduced numbers, poor physical condition, and the bad *moral* which often results. To arrive at the pitch of excellence implied, means even in peace time continuous effort; how much more, therefore, is required in war, when almost everything militates against it! To consider the question of numbers alone, the reduction may be caused by casualties in action or by hardships and sickness, and it is worth while to study from the investigations of experts what experience has to teach regarding the relative importance of the wastage due to disease as compared with that caused by the enemy.

To quote from Munson ("Military Hygiene"):—

> "Since the great military epidemics of antiquity—the destruction of the Assyrians under Sennacherib; the plague described as occurring during the Peloponnesian War; the pestilence which ravaged the Roman and Carthaginian Armies; the great losses sustained by the army of Severus in the marshes of Caledonia—it has been established as a general rule that, in protracted wars, armies suffer much less from wounds and deaths incurred in action than from disease; a fact which conclusively shows the necessity for a proper military knowledge of hygiene. The constant advance in sanitation, however, based upon a more accurate knowledge of etiological factors has exerted a marked effect in diminishing military morbidity and mortality; and while in the future comparatively high rates for sickness and death among troops engaged in war, are always to be expected, it is scarcely possible that such disastrous epidemics as have prevailed in times gone by could be repeated in the future. Further, wars become shorter as they become, through modern refinements, more

expensive; and troops, particularly in an aggressive and decisive campaign, are not now exposed to unhealthful influences to as great a degree as was the case when hostilities were more protracted. With improvement in the effectiveness of arms, both as regards range and rapidity of action the proportion of casualty for any period of action must naturally be increased—and hence there is a constant tendency toward the approximation of the rates from wounds and disease."

The following figures, mostly gathered from the same source, will show what history has to tell us. To admit of easy comparison and for simplicity the figure for the casualties has in each case been reduced to 1.

TABLE "A."

COMPARATIVE LOSSES (DEATHS ONLY) FROM DISEASE AND CASUALTIES.

	Disease.	Casualties
Walcheren Expedition, 1809. British	21	1
British Army in Spain. British	3 (more than twice the number of men in the army passed through the hospitals during the year).	1
Russo-Turkish War, 1828	4	1
General Scott's Campaign in Mexico. U.S.	Losses from disease alone exceeded one-third of the effective forces.	
Crimea—Allies (in 6 months)	25	1
French (whole War)	3·75	1
French War in Mexico. French	nearly 3	1
American Civil War—Federals	about 2 (excluding 24,184 deaths, cause unknown).	1
Confederates	3	1
Austro-Prussian War, 1866. Prussians	1½ (very short campaign).	1
Spanish-American War, 1898. Americans	7½ (very short war, unhealthy country).	1
South African War. Out of action. British	3 (long war).	1
Franco-German War, 1870-71 Germans	0·57	about 1
Russo-Japanese War (Oku's Army)—	(Cases of disease.)	(Killed and wounded.)
May 6th to December 19th (9½ months)	about 1 (40 deaths only from disease).	1

It must be remembered, in considering this table, that the figures for the casualties are more likely to be complete and full, as every case of a wound is more likely to be known and noted, and that therefore the preponderance of disease losses is, if anything, underestimated.

In all except the two last examples this has been immensely on the side of disease. The reversal of this relation in the last two cases can perhaps be partially explained by the extraordinary precautions taken and the minute care bestowed by all ranks upon matters of hygiene and sanitation, as well as to the reasons given in the latter part of the above extract from Munson. We can thus appreciate roughly how much numerical loss may be occasioned to an army by disease as compared with that caused by an enemy. Putting aside all humane considerations and considering the matter from a brutal business point of view, it is clear therefore how operations may be handicapped by sheer loss in numbers. Besides this, as health is the greatest of all "comforts," we will not be digressing to look a little further into the matter.

Having arrived at the figures, let us briefly enquire into the main causes of these great losses.

Again quoting from Munson:—

> "The rates of sickness and death for troops during campaign, independent of the circumstances which accompany conflict, are chiefly influenced by the sanitary standards maintained, and, as already stated, it is difficult to cite campaigns in which the death-rate from sickness has not been greater than that from casualty. The diseases observed during continued warfare, according to Laveran, are largely brought about by four chief influences: atmospheric, exhalations from the soil, evil conditions of the latrines, and poor food. The atmospheric exposure to which a soldier is often subjected is one of the greatest hardships of a campaign. Sleeping on the bare ground and often drenched with rain, standing in trenches exposed to snow and cold, or making long marches under a tropical sun, are a few of the influences by which he is debilitated and his constitution impaired. Service in a malarious country is notoriously productive of disease, while ill-policed sinks are potent factors in the occurrence of typhoid and dysentery. The influence of insufficient or improper food in lowering the resisting powers of the soldier is well recognised. Excessive fatigue and moral influences also play an important part in determining the sick rate, it being well established that victorious forces have less sickness than armies which have been beaten and demoralised. The endemic and epidemic diseases of an occupied country, together with the influence of a change of climate, aggravate also to a considerable degree the sickness and mortality of an expeditionary corps."

Besides the direct losses caused by death, to which a more or less certain value can be assigned in figures, there are the other indirect losses, for which these causes are equally responsible, and which impair the efficiency of an army none the less because they cannot so well be estimated in figures. These are:—Loss of vigour and power, caused by

sickness, exposure, and starvation, and the consequent loss in discipline and *moral* which is so fatal to an army.

From these few extracts and from the perusal of the works of those who have made the matter a life study, and who have tabulated the statistics available from all nations, we can deduce certain conclusions. We also thereby arrive at the broad lines upon which we, as non-technical soldiers, should act in our effort to ameliorate the condition of the soldier on service in order to produce a more lasting and far-reaching result, and one of more importance to the Army at large, than our well-meant but unguided efforts to alleviate petty discomforts or hardships. The conclusions we can come to, I think, are that the four most important points to be considered are:—

I. Sanitation and Hygiene.
- Water Supply.
- Conservancy.
- Clothes and Equipment.
- Marches and Fatigue.

II. Shelter.
- Bivouac.
- Tents.
- Huts.
- Entrenchments.

III. Food Supply.
- Rations.
- Fresh Meat.
- Cooking.
- Requisitioning and Feeding in Country.
- Supplementary Rations.

IV. *Moral.*

This is not a paper on "Sanitation and Hygiene," with which large subject the Regimental Officer, not being "a fully licensed man" within the meaning of the Act, is by no means competent to deal, and which we may safely leave in the hands of the experts. But it has been my object, as it has of others, to try and draw attention to its relative importance even when merely seeking after comfort. As an example, I hope I may possibly prevent some officer, keen and zealous for the well-being of his men, from worrying his head about improvising candlesticks or providing them with light literature (both very desirable comforts) whilst his water supply is being contaminated unnoticed by some preventable cause, or whilst filth-laden flies are cheerily washing their legs upon his fresh meat supply.

Whilst, then, considering this point, I think it will be sufficient for our purpose if we touch only upon the two great diseases which seem to be affected most—enteric fever and dysentery. Both diseases are favoured by camp life. Enteric is, roughly speaking, caused by swallowing a bacillus in water or food, or drawing into the mouth bacilli suspended in the air. Dysentery is usually caused by swallowing contaminated water or uncooked food, and is favoured by a hot climate. This, I think, is sufficient to give us non-experts a line as to what we should watch in order to do our little best to avoid these two scourges and, incidentally, many more.

Hints on Details.

No repetition of what is so fully and completely laid down in Combined Training, Manual of Military Engineering, is given where

it can be avoided, but some hints and tips picked up from personal experience and gathered from the experience of others, are here collected.

Sanitation and Hygiene.

We need not here consider permanent or standing camps, because the conditions more approximate to those obtaining in peace. In fact, the standing camps in the manœuvres of the U.S. Army are, I believe, in hygienic ways as good as barracks. Shower baths are provided and very special conservancy arrangements. The arrangements for standing camps will be organised by experts, and not regimental officers, as a rule.

On arrival in camp, it is imperative that all the sources of the water supply should be *at once* protected. The R.E. officer with one column in South Africa found it worth while to carry about barbed wire and pickets on trek. These were sent forward at the first opportunity to place round the drinking water at every halting place.

Natives of India are specially bad in fouling water and want much watching.

When approaching a camping ground on the march, if cattle or loose horses are marching with the force, it is advisable to send *mounted* men on ahead with the advanced party, specially to keep the animals from stampeding into the water and fouling it before the places for obtaining drinking water have been marked out and protected.

If Berkefield filters are supplied, and the water is muddy, it must be strained through a sheet first, or the Kieselguhr candles of the filter will become clogged immediately. These filters are very slow, and a form of sterilizer has been recommended for trial.

The "candles" also proved much too brittle for active service, and could not stand the jolting of the march.

If there is time to make the ordinary barrel filters of sand, gravel and charcoal (described in the Manual of Military Engineering), it should be remembered that very fine sand is not good, it may be washed out. The rate of filtration depends on the size of the barrel, and the head or depth of water over the top layer of material. If the water runs through too quickly, and is consequently not filtered enough, a notch should be cut in the top edge of the barrel as an overflow to reduce this head of water. This notch can be increased in depth till the proper size of filtration is reached. As the filter needs a continuous supply, it should be fed from a reservoir which can be quickly filled and left to run; if pumping direct into the filter is tried, it will necessitate a fatigue party pumping slowly all day. The charcoal should be periodically cleaned by burning.

If the water supply is from a well or tube well, the ground should be kept clear of possible contamination within a circle whose radius is *at least* four times the depth of the well where the soil is solid; but to allow for underground channels, this distance should be increased. The well drains an extent of ground in the form of an inverted cone.

A surface drain to prevent surface water running into the well will be necessary unless it has a parapet wall.

Even if a latrine is on the downhill side of a well, so that no surface drainage can take place (from a rain storm, etc.) from the latrine to the well, yet if the geological formation of the hill is in

strata sloping from the latrine down to the well, the well may, in course of time, be fouled.

If there is a choice of service hand pumps, the lift and force pump, which will suck from 25 feet or so and force to nearly 60 feet, should be chosen. The tripod pump will suck from 25 feet, and deliver at its own level, and is less convenient for filling water carts.

The semi-rotary pump is not so powerful as the lift and force, and gets out of order more easily.

To prevent buckets or other open receptacles from splashing when being moved, a wisp of hay or grass, or a flat piece of board, should be placed in the water.

Munson lays down that water barrels or carts should be scalded every day and scrubbed down. This is not always possible on the march, but still, more can be done than is sometimes attempted. In South Africa the water carts, in many cases, were trusted entirely to the native drivers; no one else paid any attention to them. What happened then was, that the cart was perhaps, filled at one place with inferior water consisting of a large proportion of sludge. By the time another water supply, with possibly the very best of water, was reached, the cart would be only half empty, it was not emptied out, but was refilled on top of the dregs and sludge remaining inside, thus a *mélange* of waters was carried on and on.

In India and Algeria the water is carried in skins on camels, and by men specially enlisted as water carriers. This has been done away with now in India, as far as the Army is concerned, I believe. The water will be carried in metal vessels.

If a volume of water is required from a trickling stream, it is very often quite simple to dam the stream sufficiently to get the required amount collected within a reasonable time.

In hot climates the water question becomes all-important.

In Somaliland, each soldier carried two canvas water bags or "chagals," each containing 1½ gallons. (In South Africa these chagals were obtainable sometimes from the Field Force Canteen, and many men used them.) Of course, these were always full at the start of a march, and the men were informed that no water would be issued until a given time on the following day.

The water supply for the column was carried in galvanised iron tanks on camels, each containing 12 gallons of water, and a camel carried two tanks. The weight of each full tank was 180 lbs.

The chief points of the chagals or water bags are, that being canvas the outside keeps damp. The evaporation of this in the hot air keeps the water much cooler than anything else, on the same principle as a porous earthenware pot; until these bags have been used a bit, and get a sort of film or slime in them, they leak.

The water found in Somaliland was chiefly in pans or pools, and of the worst quality. In the camps and posts more elaborate supply was arranged with pumps and storage tanks, etc.

In arranging any water supply, full use should be made of the fall of the ground, so that all flowing possible may be by gravity, in order to obviate pumping.

If the water is bad, it should be boiled if possible, or cleared with alum, or only drunk in tea, as laid down in the Text Book. This is very often not possible, as there is neither time nor fuel for boiling pots handy, and however bad the water, thirst is worse and men *will* drink.

When in difficulties for water in a country with a railway, it may be useful to remember that at stations a few miles apart there must be a water supply for the engines. This very often means a largish tank and a steam pump.

If there is a man who professes to be a diviner, he should be allowed to try his art. For further information on this subject see the articles in the *Times* of 21st-28th January, and 4th February, by Professor W. F. Barrett, F.R.S. Local natives can often trace underground water by the presence of certain plants.

Conservancy.

Latrines should be dug at once in arriving in camp. As proper deep trenches take some time to make in hard soil, a shallow trench for temporary use should be made, the most stringent orders issued that no places except the latrines should be used.

The men of the class from which our soldiers are drawn are not so alive to the importance of attending to these matters as they should be (to put it mildly), and an appeal to their intelligence is often useless; these health precautions have to be forced on them. A suitable punishment can easily be devised, if necessary, to fit the crime, when rules are broken.

Native troops, as already stated, though in ways very cleanly, have to be watched in this matter; they prefer to obey Nature's calls down near a river or water supply.

If there is a prevailing wind, which is often the case, the latrines should be to the leeward of the camp, and if the stay in camp is likely to warrant it, a second set of latrines should be started long before the first are full, to avoid delay and shallow trenches being made in a hurry. They should not be too far from the camp, or the men will not use them. Where dense bush and a savage lurking enemy prevent the use of latrines outside camp, at night, pans should be placed in camp for night use only.

Whenever time allows, and any material is available, small screens should be put up. This is not only for decency, but prevents paper being blown all over the place.

The importance of the fly question in hot climates can hardly be exaggerated.

In an article written by Colonel Sim, C.B., R.E., at Ladysmith in February, 1901, and published in the April number of the *R.E. Journal*, the author expresses the view based upon what he saw in South Africa, that the main cause of enteric was not from impure water but from flies; he says:—"They are one of the plagues of the country, and the epidemic is contemporaneous with their season. . . . . The favourite food of the hot weather fly seems to be human excreta, and next to that, almost every article of human consumption, whether cooked or uncooked, especially milk, sugar, jam, meat, bread and butter."

He states that the ordinary arrangements for camp sanitation are rather calculated to increase than to prevent disease. This opinion is chiefly based on the fact that the excreta of men are not properly covered with earth. For standing camps he shows a design of a very simple box latrine seat, with an automatic falling flap cover, which could easily be made by pioneers. For bivouacs and temporary camps,

outposts, etc., he urges that men should not only be taught, but *made* to cover up their tracks with earth, even when men use the open country of necessity—this can be done with the bayonet.

He says "The oldest Army Order" on the subject promulgated by the great leader Moses (Deuteronomy xxiii, 13) might, with advantage, be republished in every camp and inscribed on every tent pole.

"Thou shalt have a paddle upon thy weapon; and it shall be, when thou wilt ease thyself abroad, thou shalt dig therewith, and shalt turn back and cover that which cometh from thee."

As Colonel Sim points out, it is impossible to adequately cover all the food and supplies so that flies cannot touch them, and therefore the men must be forced to make a free use of earth when using the latrines.

A branch or bar of wood forms a better extemporised seat than anything of iron, such as a railway rail; the iron is unpleasantly hot in hot weather and cold on a freezing morning. The more comfortable a latrine the more likely it is to be used. The French have one system of latrines in which there is a very narrow trench astride which the men stand, no seat being necessary.

Particular care should be taken on leaving a camping ground that all latrines are *well* filled up and marked, for the sake of other forces who may camp on the same place later. It is not enough to stick a piece of wood in. This is not always available, and may soon be removed. It is better to mark the place with stones, or a layer of ashes, or charcoal, or anything available which is conspicuous.

I believe in the Afghan War of 1878-79 an immense amount of illness was caused by troops camping over old latrines which had not been marked.

Refuse should be burnt if possible. If fuel is too scarce to burn it, it should be covered periodically with earth. Remains of meat, etc., soon putrify in the sun, and the refuse pit shares the popularity of the latrine with the flies.

If time and fuel are not available to take out the entrails of dead animals and burn them, the carcases should be slit open, and the entrails buried. This allows them to dry up quicker, and so shortens the period of stinking.

As an offence, I believe the dead elephant leads; owing to his bulk and thick skin he swells and lasts a long time before bursting.

The Japanese, from the accounts one sees, are most particular in burning dead bodies of all sorts after a fight; but when the number was large this must have been impossible.

Sir Frederick Treves in his new book "Behind the Lantern," quotes the opinion of an American Army surgeon as to the large amount of time expended by the Japanese medical officers in preventing disease in comparison with that spent in curing it. The results we know, approximately.

Clothing and Equipment.

There is not much to be said about clothes from the point of view of the soldier on service. He has to depend upon the existing patterns, and content himself upon what is issued.

The scope for improvising substitutes is very small, unless a force is driven to using skins, as the Boers were towards the end of the war.

Every day improvements are being made in the active service kit of the different Armies, and all these changes are efforts towards increasing the comfort of the uniform and its suitability for the object in view, the tendency all over the world being to decrease the weight that the soldier carries on his person, as far as possible.

The latest improvements of which I know have been made in the Danish Army, after numerous experiments as to invisibility and suitability. The approved active service uniform is a blue-grey blouse, which is cooler in summer and warmer in winter than the tunics; in winter, flannel under-garment dispenses with the great coat. Canvas shoes with natural leather uppers, and a cap like the Austrian "Kepi" completes the clothing.

The Germans are following on somewhat similar lines.

The most recent changes in our own Army are in the way of the equipment.

The old pouches and belt are to be done away with.

The pouches were found to be much in the way of the men when lying down, and ammunition was easily lost from them, both when running and lying down. Lord Kitchener said before the South African War Commission that "our losses in ammunition in this campaign, which in itself proved a source of supply to the enemy, cannot be ascribed to the want of care of the individual soldier so much as to the peculiar unsuitability of the article supplied to him to carry his rounds."

The pouches are replaced by a bandolier and four pockets on the front of the belt for cartridges in "chargers." Two of the pockets hold 15 rounds and two hold 10 rounds, or 50 in all on the belt. The bandolier has five 10-round pockets—50 rounds in all.

The full equipment consists in:—

1. Brown leather waist belt.
2. Brown leather cartridge pockets—four.

On the belt are carried:—

a. Mess tin at back.
b. Bayonet in frog on left.
c. Tin in cover for foot grease and rifle oil on right rear.
d. Cartridge pockets.

3. Bandolier—50 rounds—worn over left shoulder.
4. Haversack of greenish khaki-coloured canvas; this is for food and not for kit, and has a pocket on the back for the emergency ration. It is suspended from the right shoulder.
5. Water-bottle on strap—this is an enamelled iron water-bottle of the present flat square shape covered with brown felt—worn suspended from left shoulder.
6. Mess tin and cover—the same as at present pattern—worn on belt; it can be taken off without removing the cover.
7. Web coat-carrier; this takes the coat folded up 15 inches long by 9 inches deep on the back near the shoulders.

The uniform is of khaki serge, much the same as at the end of the South African War.

The great-coat being khaki, escapes the drawbreak of conspicuousness which was often attributed to the old grey great-coat. The old ones were stated to be an "encumbrance" instead of a "comfort," before the War Commission, and it was also said that they could not be carried on account of their conspicuous colour and their weight.

It is always advisable to indent for clothing early, even where there is enough for all, because if other units have first pick there may be a run on certain sizes stocked, the result being that the last comers have to take any sizes left.

British warm coats, originally introduced on the N.W. Frontier, India, were, during the South African War, intended for mounted men, being short for that purpose, but they were much appreciated by *all* men, as they were so handy.

Silk or other mufflers are very comfortable under the harsh khaki collars.

Even for dismounted troops, the breeches cut for mounted men are more convenient than serge trousers. The putties fit on so much better. Wearing putties over trousers causes dragging and wearing out through the crumpling of the trousers under the putties.

For cold nights, loose thin gloves are perhaps better than thick tight ones. They keep the hands warmer and do not prevent writing or shooting in a hurry.

In connection with great cold, it may be interesting to note what was done in the way of thick clothing for the troops in Tibet.

All the British and native troops had an extra blanket and a British warm coat.

The following (natives) had:—

1 extra blanket.
2 pairs worsted socks.
1 pair mittens.

Then there was "special warm clothing." This consisted of:—

Poshtin coats (over British warm coats.) (These are sheepskin coats with the wool inside, always used on the frontier of India.)
Cotton quilted "rezairs" (cotton padded coats or quilts).
Thick woollen gloves.
Thick woollen vests.
Thick woollen quilted overalls.
Gilgit boots (quilted felt knee boots).
Quilted cotton, woollen, or puttie socks.

The coolie porters had:—

3 blankets.
1 jersey.
1 pair warm pyjamas.
1 Balaclava cap.
2 pairs socks.
1 waterproof sheet.
1 follower's warm coat.
Woollen drawers.
,, gloves.
,, vests.
,, socks.
Gilgit boots.
Goggles were also issued (against snow).

Tibetan woollen cloth was made into poncho blankets.

As the troops had to fight at an altitude of from 14,000 to 18,000 feet and in 50° of frost, it can be grasped why all this clothing was necessary.

Possibly the Russians and Japanese have made very similar issues. The latter are stated to have issued "ear protectors" made of rat skins, killed some time ago on account of the plague.

Marching and Fatigue.

The article already referred to by General Négrier bears largely on this subject, and in it the dangers and drawbacks of Forced Marches are fully described. These are sometimes called Death Marches by the Germans.

A march is less fatiguing if frequent short halts can be made instead of one long one. The most perfect form of rest, unless the ground is damp, is to lie down and stretch. As Stonewall Jackson said:—"A man rests all over when he lies down."

It is during such halts that the water-bottles are appreciated, also the chance of re-filling may occur, but men are inclined to drink far more than is necessary, and need guidance on this point.

If the halt is long and the sun is hot it is worth while for the men to rig up small shelters with rifles and blankets. In a treeless country it is an advantage to be near transport, on account of the shade of the wagons, and in this respect artillery score.

It should be borne in mind that the nature of the going (whether good road, sand, swamp, mud, stones) has as much to do with men's marching powers as climate and distance. Heat is especially bad for marching. In one foreign Army, instructions are given for men when marching in column of route to cover off carefully to allow air to circulate between the ranks.

When inclined for music, singing and whistling help the men, even the humble mouth-organ is inspiriting.

In the Japanese Field Service Regulations it is laid down that halts will usually be in villages—to get water, supplies, and shelter—and men will always be sent on to prepare food. There are instructions also about the men being allowed to march very much at ease.

As to the fatigue of men, it is possibly, in the long run, more the harassing or worry they get and the lack of sleep than physical exertion which tire them out. Every effort compatible with safety should be made to let men have sleep. This especially applies to small detachments, where the proportion for picquet becomes larger.

When men are tired and wringing wet it is worth while, if no more can be done, to try and scrape up sufficient fire to dry their putties at, if nothing else. There is a certain inexplicable comfort in dry putties, and less stiffness next day.

Shelter from Weather.

From the comfort point of view a mistake is sometimes made in choosing for a bivouac or camp a snug little hollow, which may become a pond of standing water after an hour's rain (though it is not a ravine or water-course).

Even when there is no choice, and such a place is unavoidable, it is very often possible to pick out little knolls or "islands" in the

hollow. These are not very noticeable when the place is dry, but can be found with a little trouble—when the water collects they show up very quickly.

Shelters can be rigged up in many ways, according to the material and the fancy of the individuals. Men quickly become very inventive in improvising from whatever is available. It is useful to see what the natives of the country use.

The commonest shelter in South Africa was to support a blanket between two rifles so as to form a *tente d'abri*; sometimes the rifles were stood muzzle down with bayonets stuck in the earth. Two or three men clubbed together, used two blankets for the roof, and the remainder, with the waterproof sheets, for their bodies.

Another neat way, in a country where corrugated iron is obtainable, is to prop up two sheets (each about 2 to 2½ feet broad and 6 to 8 feet long), resting against each other with their long sides on the ground. They are prevented from slipping down by bending a corner of each to lock together or lacing along the ridge with wire or string; a trench underneath adds to the comfort.

The French and Germans make shelters to hold about 15 men. These are circular in plan, with a wind screen around outside, with opening to leeward and a fire in the centre. The men lie feet inwards in a circle.

In most Continental Armies the men carry pieces of canvas and sticks, with which they can rig up *tentes d'abri*.

Experiments on a small scale were made with them in South Africa, and I believe some are under consideration for our Army at present.

When lying in the rain in the open with only blankets over one, some prefer to lie on their backs, feet first to the wind, others to present their backs to it. The advantage of the latter is that one has the overlap of the blankets over one's face. Of course, if empty houses are available in bad weather men would always be placed in them—any house or shed is better than the open.

Failing houses, should a halt be long enough to warrant their use, tents, if procurable, will naturally be pitched.

It is as well to pitch them with their openings to leeward and dig a trench all round outside. When there is a trench or defensive position to be manned, the openings should be close to and towards this. When the weather is very cold the ground inside can be dug out for a foot or two, leaving a block for the tent pole, and the earth put up round the fly of the tent, but this should never be done in malarious soil. (If timber is handy a long pole can be put in instead of the usual tent pole to raise the height of the tent.) This is usually done on the north-west frontier of India in camps which are liable to sniping. In very cold weather it is the only way of getting out of the draught; in very hot weather also a hole is comfortable, as it gives coolness. Even if the floors are not dug out, a stone or earth or wattle daub wall can be built all round and the tent pitched over that, this gives more head room.

The broad question of whether the ground inside tents or shelters should be excavated as a protection against heat and cold depends entirely on the locality and the climate. In a malarious country, or when wet weather is likely, it should not be done; freshly disturbed earth is likely to produce fever. It was often done in South Africa, and is usually done on the N.W. frontier of India, and is being done

by both sides in Manchuria. On the other hand, it was the cause of much sickness in the Crimea. One case occurred in South Africa where two battalions occupied two sides of a hill under precisely similar conditions. They both made shelters of corrugated iron. One dug holes—the other did not. The battalion that dug holes had very much more sickness than the other. The only explanation was the disturbance of the ground.

It is also possible to fix a door or window-frame in a tent.

In cold weather a clay or brick fireplace is made in the centre, or oil stoves used, but this would only be in a standing camp.

Where a permanent standing camp is established hutting will probably be sent out from home already to put up. This may be of corrugated iron or composition on wooden framing, and the design and erection are beyond our scope. Short of this, huts can be made in country where wood abounds of branches trimmed and lashed together, with walls of wattle and daub or matting and thatched or matting roofs. In a dusty place, for an office, windows can be made of oiled paper or tracing cloth.

Without entering further into detail of these, which are all described in the Manual M.E., there is one golden rule to remember when making all huts of rough frames: always lash on a diagonal piece, this will prevent the frame getting distorted, which it is certain otherwise to do, however well lashed. A square or oblong is not a rigid figure, a triangle is.

The Japanese are using huts consisting of a thatched and earth roof over a dug out, the sides of the excavation being the walls of the hut. The Russians, I believe, are doing the same; these huts are heated by charcoal braziers or wood fires. Charcoal is most dangerous on account of the fumes, which should be carefully conducted out into the air.

The main points as regards comfort in trenches are that they should be the right height to shoot over, and should be of a size to allow men to lie down at full length when the trenches have recesses as protection from enfilading fire; the recesses should be wide enough (say 6 feet 6 inches) to allow a man to lie down across them, or, if this is too wide for safety, they should be made longer, so as to allow 12 inches gangway behind a man lying along them—length from front of recess to rear of main trench, say, 7 feet 6 inches. This adds greatly to the comfort, as men are not cramped. If the trench is made curly in plan for the same reason, the bends should allow of men to lie down at full length.

A trench, cruciform in plan, is a very comfortable pattern for a picquet of one non-commissioned officer and three men, three arms of the cross being 6 feet 6 inches long to allow three men to sleep at a time. Its other advantages, which may possibly be comforting to its occupants in another way are that it is very defensible against all-round attacks, and gives good protection against shell fire. The sentry has 180° field of fire where he stands and the others can shoot all round.

If it is to be roofed in it requires smaller material than a round or square post for the same number.

There are various little things, such as roofing over lengths of trench, cutting seats, cutting recesses for ammunition, food, water bottles, candles, which men do naturally if they spend some time in the trenches.

Drainage of trenches which are to be occupied for any time should be attended to.

With regard generally to drainage in camps, the drains should be cut to work in with the natural drainage of the site. This is rather hard to distinguish sometimes in flat places in dry weather. It is, therefore, worth while, if storms are not likely, to wait until it rains before the drains are cut, this will obviate digging in the wrong place, and save much labour as the ground will be softened.

When on a hillside, the mistake is sometimes made of digging the horizontal collecting drains deeper than the main drains running down the hill, the water is thus collected in the bottom of the former, and does not run away.

In the Japanese Field Works Manual, it is described how rifles should be kept in camp by being wrapped up in rags and rested on two crosses of wood. This keeps them out of the mud and dust.

Food and Supplies.

As to the problem of supply in war, that is a question for experts, and for information on the "Methods of Feeding Troops in War" I cannot do better than refer you to a most interesting lecture delivered under that title, before the Military Society in Ireland on 12th February, 1904, by Brevet Colonel A. H. Thomas, C.B., D.S.O., A.S.C., and published by the Headquarters Printing Office at Dublin. In this article the different methods of supplying an army in the field are very clearly explained.

The question of the necessary movement of the supply columns is also extremely important, and there is an article in an Austrian Military Magazine of a month or two ago, in which the whole question of the movement of columns, and how far their movements are effected by requisitioning, is worked out mathematically, and expressed in formulæ.

With regard to food, of course, we must take what we can get.

The rations issued during the South African War were on the whole, excellent and abundant, with the exception of those occasions where the exigencies of the service interfered, notably in the case of the advance to Bloemfontein, and of the 8th Division operating in the east of the Orange River Colony.

There is no need to detail the whole scale of rations, but I give a comparison between that issued to the troops at the end of the war, and the scale reported to be now issued to the Russian troops in Manchuria. It would serve no useful purpose to give the Japanese scale, for their diet is so different from ours, consisting largely of dried fish and rice.

Daily Allowance per Man.

	Russian.	*British.*
Biscuit	1 lb. 13 oz.	1 lb.
Fresh Meat	$7\frac{1}{4}$ oz.	$1\frac{1}{4}$ lbs.
Groats	$4\frac{4}{5}$ oz.	Split Peas 2 oz.
Salt	$\frac{4}{5}$ oz.	$\frac{1}{2}$ oz.
Tea	$\frac{9}{40}$ oz.	$\frac{1}{2}$ oz.
Sugar	$\frac{2}{20}$ oz.	3 oz.
Spirits	0·27 pint.	0·125 pint (3 days a week)

Now the Russians are reported to be big men and large eaters, so that this comparison shows how well the British troops were supplied; this is neglecting all the alternatives and extra things which we had, such as jams, Machonochie rations, flour, vegetables, fruit, and rhubarb.

Lord Kitchener said they were better fed than in any previous war, and I should say it was the most luxurious feeding an army has ever had. There is even, perhaps, a danger of this standard being set and expected in another war when we may get it.

To quote a few facts about the Japanese. Before the battle of the Yalu, every man carried three days' rations on his person, and knew that he would have to make them last for at least three days.

After the battle of Nanshan, the troops, who had no food all day except what they had on them, had to content themselves with the stale boiled rice of the day before, and what they found in the captured Russian kitchens.

What was most felt in South Africa was, I think, the lack of fresh vegetables and fruit; but this was partially remedied by the Government farms established towards the end of the war. There was a certain amount of fruit, such as oranges and peaches, to be got on the deserted farms in the Transvaal. To show the demand for fruit, I believe that 11,000 oranges were sold by the canteen of one battalion of Guards in one day. Personally, what I noticed most—and the regiment I was with, being on the railways most of the time, lolled in the lap of luxury—was the way that grown men hungered after sweets. Our regimental canteen could not get butterscotch fast enough to keep pace with the demand; this was, perhaps, a luxury.

The chief criticism of the rations was, that 6-lb. tins were too bulky and heavy for the men to carry with comfort. Generally, it is worth while paying great attention to carrying the small luxuries, such as tea, sugar, pepper, etc. Not being staples, they are sometimes apt to be comparatively overlooked; but they make a great deal of difference to helping down the food. Their weight and bulk are insignificant when compared to the main articles.

Fresh meat puzzles men when first issued to them alive, but it does not take long for them to learn how to kill and skin it, though they do not cook it well.

When marching, if the transport is available, it is a good plan to have the meat cut up and issued to the unit before the start, and carried cut up and covered during the day's march. This saves the delay of cutting up and issuing after arrival in camp when everyone is tired and hungry, and also takes the place of hanging the meat and renders it less fresh and tough. For small detachments, it can be issued straight to the messes, and if transport is not handy the men can carry it.

All meat should be covered in hot weather, by something—a cloth, clean as possible, is most usual. In some columns in South Africa, small meat safes of wire gauze were manufactured, the blockhouses nearly all had proper meat safes.

The men prefer messing in small squads, where they look after themselves—it is the simplest way to feed. Each small squad makes its own fire, and cooks in their mess-tins.

Perhaps his ignorance of the merest rudiments of cooking causes the soldier more discomfort than anything else. If his rations are of the best, he spoils them in the cooking. Having been accustomed to have everything done for him, he is helpless, and even when he has experience he does not learn to *cook*. The soldiers of all Continental nations can look after themselves much better, and most of them could make an eatable stew or soup from horse meat.

I certainly think it is essential that every man should be taught how to cook the *rations he is likely to get on service*. This is being done in India.

I speak under correction, but I believe under present conditions the men have much spare time, and as far as time goes, they could be easily instructed in cooking. It is a most important point for their comfort and health.

Some Armies have portable kitchens which cook whilst on the march. By this means some hot stew or soup is always at once ready for the men when they halt to feed. These have been experimented with in our Army.

Baking powder is issued with flour, and even inferior bread is a welcome change from everlasting ration biscuit. It can be made when there is time to build an ordinary field oven with corrugated iron or hurdle and clay.

As a relief to the teeth, biscuits can be stewed with the meat. The chief drawback to the ration biscuit is the harm it does to men's teeth.

When feeding on the country, the necessary requisitioning will be done for large forces by a special officer, as a rule, who will work on some uniform system and know what they can expect and demand with fairness.

With small detachments the officer in command must do it for himself, and will have to be shrewd. It does not pay not to give a fair price, for supplies will not come in; at the same time, the inhabitants do not often give things away.

The matter should be regularised, and each man should not act for himself, otherwise the whole time of the commanding officer will be taken up with complaints of under payment, robbery, etc.

Vegetables, eggs, butter and milk are the usual supplies which can thus be obtained.

In case of necessity, where it is a case of taking food or starving, it must be taken when the troops are on short rations; there is, of course, an immense temptation to loot and kill animals, even against the strictest orders.

When arranging for inhabitants to bring in supplies they should not be allowed near the camp, but a market should be established well outside.

If it can be arranged, a canteen for the unit from which odds and ends and small luxuries are sold to the men proves a great boon. The small profit made can be used for the men. In one Irregular regiment in South Africa, £700 profit was made in 10 months—this was given to the Regimental Widows' and Orphans' Funds.

In the latter part of the war the Field Force Canteen was started. This was of the greatest service, and a perfect godsend to the troops.

From it practically everything that an officer or soldier could want on service was obtainable at a minimum price. It had stores everywhere, and did away with all sutlers and camp followers, who usually

make their fortunes out of the troops, besides supplying them with liquor. The Field Force Canteen was organised and directed by Colonel Morgan, C.B., D.S.O., A.S.C. Incidentally it made a profit of some £500,000 for the benefit of the troops.

Where no such organisation exists, all sutlers and camp followers have to be carefully watched. Their greatest profit is in supplying liquor, for which some men will give fabulous prices, and it is impossible to prevent them doing this.

Besides the pattern of field kitchen laid down in the text books, a very simple and very good pattern is to place two pieces of railway rail parallel—the fire is between and the kettles on top. This was universally used in South Africa.

This is essential where a fresh meat ration is issued, and desirable always.

In a wooded country there is not much difficulty in obtaining wood, but at all times an allowance party should proceed to the halting place to cut or collect wood or dung.

In South Africa, where fuel was very scarce, men soon got to know its value, and used to collect bits of wood, dung, etc., on the march, and save it up for the halt. One advantage of allowing the men to feed in small squads is that it teaches forethought in collecting material.

Rum is usually issued at night; but when the troops have to stand to arms and occupy trenches, etc., very early in the morning, it is better to issue the rum with hot coffee when they come back into camp at daybreak. Rum at night seemed to make some men sleepy in the morning.

Moral and Mental Comfort.

There is nothing like success for keeping heart in men; but success cannot be commanded always, and there must often be dreary waits even on a successful campaign.

One great secret of keeping men in good mental condition is to interest them and keep their minds occupied. I have personally found there are very few men so sulky that they will not take some interest in what is going on. Men hear much less than their officers do—and that is often little enough—so that a short discussion on what is going on and the reason for certain movements or operations does enliven them.

Some of the chief causes of men becoming, as they say, "fed up" is frequent change of orders, long and seemingly purposeless waiting, and being "badgered about." These are often unavoidable; but I think if reasons are occasionally explained, it does not decrease discipline but increases interest, and helps to banish ennui.

The arrival of letters from home is always an event, and anticipated with the greatest eagerness. Surely, then, it is worth while making special efforts to ensure regular delivery of the mails.

Odds and Ends.

When obtainable, sacks filled with "bhusa," or chopped forage, form very comfortable pillows and bedding.

Very good candle-sticks can be made from whiskey or other white glass bottles of the same size. The bottle is cut through all round in two places, forming three pieces. One cut is just below the curve of

the shoulder, and the other one inch above the bottom. The bottom piece forms a salt cellar, the top the candle-stick, and the centre piece the shade (which is very necessary for economy of candles). The candle is stuck into the neck, and a piece of cardboard or tin, with a hole in the centre, placed over it. On the card rests the shade.

To cut the bottle at any place, tie a string soaked in kerosine round at the spot and light it, then at once dip the bottle into cold water: a crack will be formed where the string was. If no kerosine is available, take a round turn with string round the bottle and pull the string backwards and forwards till the friction heats the glass, then dip into water, or fill the bottle with boiling water up to the required point, and then plunge into cold water.

If dealing with telephones or telephone orderlies, it saves time and temper to arrange that the men at both ends should be from the same part of the country; it is also more comfortable to those in earshot. It does not help matters on to have a "Zomerzet lad" at one end and a "man fra' Sheffel'" at the other end.

When a whole bivouac is lying down it is not easy at night to pick out the officer commanding. His position can conveniently be marked by a helmet or hat placed on a stick stuck in the ground. This will also incidentally save the officer commanding in a stampede of horses, because they are likely to shy off the helmet if they can see it.

A few used sparklet cartridges placed under a heavy box which requires pulling in and out makes it much easier to move, unless the earth is very soft.

Those who wear braces will find it pay to sew a second button on alongside each of those on the tops of their trousers or breeches.

Men will be disposed at first to throw away such things as housewives; but a short experience will teach their value.

If in charge of a post—say a block-house—close to a railway line and short of fuel, as offensive a dummy sentry as possible should be put up (as a defensive measure). Every stoker and soldier on a coal truck will pelt the dummy. This cannot be helped, and the scattered coal should be collected and burned, as it is so untidy lying about.

On a long railway journey there will be certain feeding stations, where hot water will be ready for the men. The names of these stations and probable time of arrival should be ascertained and the men informed. If the rations and reserve ammunition are placed separately in a van, a very smart non-commissioned officer should be placed in charge of the guard over it. At night a look-out should be kept at every station to see that this van is not cut off and left behind. Strange things happen sometimes at night on a railway.

In choosing a truck to travel in, a loaded truck with a slippery tarpaulin on top should be avoided. Small coal is dirty but comfortable. A tightly-coupled truck will not jar as much as a more loosely coupled one.

At a defensive post surrounded by wire entanglement some difficulty will be found after the first few nights in getting the men to properly fix up the barbed wire in the opening, if this is done in the usual way. It saves much trouble if a sort of roller of barbed wire is made to be rolled up into the gap and wired in. The roller to be made on two cart wheels or wooden discs.

The South African War brought to notice very much the question of teeth, as many men suffered by their teeth being damaged by the

ration biscuit. We now have special dental officers in the Service. The Americans have 30 dental surgeons in their Army.

Every newspaper and book should be saved, as it will be read till it drops to bits.

If some of the transport is better than the rest, the food should be loaded on to the best to make certain of getting that at least, and getting it in camp early.

If a rallying place against a night attack is not unmistakably marked by a trench, it should be marked by other means, such as stones, baggage, etc.

In Somaliland, where the defence usually consisted of an obstacle only (thorn zereba), rifles were left standing, muzzle up, in the sand to mark the positions, and so prevent confusion.

Colonel F. J. DAVIES, Grenadier Guards (Assistant Director of Military Operations):—First of all I should like to say that I happen to know from my own experience that the lecturer is more than usually fitted to speak on the subject on which he has been addressing us to-day. I had the great pleasure of serving with him in South Africa for more than a year, and at the time he was adjutant of one of the most successful Irregular corps that was raised—the Railway Pioneer Regiment; and when I used to inspect the post occupied by his regiment near Johannesburg I was struck by the extreme ingenuity used by them in making themselves comfortable in dug-outs, on dump-heaps, and the mines and other places they had to guard. I have very few remarks to offer on the lecture itself, but there is one point I would like to speak about upon which he touched, and that is with regard to water. He mentioned the way the men use their water bottles on the march. I feel very strongly that the less you drink on the march the better. Everyone who has been on the hill in Scotland knows that the more you drink the more you want; and however thirsty you may get, if you once take to stopping at every burn you cross you may as well go home, because you will never finish the day. I have experienced the same thing in the Army. I have been in some warm places in my experience, including the Eastern Soudan and the West Coast of Africa, and I have always endeavoured to train myself to get into camp if possible with my water bottle full; and if I did drink I always took care to eat something first, even if it was only a little dry biscuit. The last time I did regimental duty in this country I was adjutant of a battalion, and we did everything we could at the manœuvres to train the men not to use their water bottles, and in that battalion at that time no man was allowed to fill his water bottle on the line of march without leave from the commanding officer. After a little time the men found out that drinking cold water on a heated stomach produced cramp, and yet did not satisfy their thirst; they also found that they marched better if they marched without water. The men should not be allowed to fill their water bottles from the water cart on the line of march, but the use of a water cart should be to give them a good meal when they got it. I think that is the sound principle to adopt in the case of water. The lecturer mentioned the case of the liking for sweets. It is not a very important point, but in the ordinary way I do not generally take sugar in my tea—not a very interesting detail, I grant—but in South Africa one often got nothing to drink (no liquor) and I had a most extraordinary craving for sweets. Anyone who knows South African Boers will tell you there are two things they love: one is a concertina and the other is sweetmeats. Now, the average Boer

of the veld, particularly those in the bush, will never see drink from one year's end to another, and I think that has a great deal to do with his craving for sweets. With regard to cooking, I was glad to hear what the lecturer said on the subject. I have for years held the view that we carry our principle of the cooking for a company being done by one or two cooks too far. It is the right principle when staying in barracks or when quartered at one place in a campaign, but not during actual operations, for you cannot expect every small detachment of men to have with them trained cooks. If men who are on a long march have not been trained to cook their food to the best advantage, so as to get the most possible out of it, it is a serious matter, because badly-cooked food is no good; it fills the stomach, and perhaps causes indigestion. It certainly does not nourish the man as it ought.

Colonel T. C. P. CALLEY, M.V.O. (1st Life Guards):—I agree with what Colonel Davies has said on the subject of not drinking, but a very small thing which will assist the men to avoid wanting to drink is to continue chewing something; this keeps up the secretion of saliva, and thus makes the mouth continually moist. I have found that even a stalk out of the hay will have that effect. Some recommend keeping a stone in the mouth, but of course there is the danger of swallowing that. Certainly the stalk of hay keeps the mouth damp and largely does away with the desire for drink.

Colonel F. J. DAVIES:—I may say I always have a small pebble in my mouth when I am stalking in Scotland. I have never swallowed one yet.

Colonel C. B. MAYNE, R.E.:—I would like to mention that in Afghanistan, which is a very hot country, large numbers of men carried raisins. These raisins had some peculiar acid or other ingredient, which had the effect of keeping off the desire for drink. Another thing I have done in hot countries is to wear a wet cloth round the neck. The water was not fit to drink, but that did not matter for such a purpose. The wet cloth round the neck kept off the feeling of thirst, which seems to lie more in the throat than in the stomach. I was glad to hear the first speaker refer to the chilling of the stomach by drinking large volumes of cold water. Whenever I have come in at the end of a day's march I have found more relief from half a cup of luke-warm water first before taking a good drink, and then to attend to the inner man by indulging in the delights of the cooler liquid. A cool drink rarely quenches the thirst, whereas a luke-warm drink does, especially in the form of weak tea or coffee. Another thing with reference to camping is the use of mutton fat for leather-work. The ordinary white fat of the sheep, both for dubbing and for preserving leather-work, such as saddlery, is of the utmost value. There are some other things which Captain Swinton referred to which might be enlarged on. He spoke about over-doing comforts. I was told on good authority that during the Bechuanaland campaign that this question of strong drinks was very much overdone in certain Irregular corps, and it led to such a crisis that the general commanding ordered the whisky barrels of the settlers to be seized and buried in pits 20 feet deep. The drunkenness then stopped for three or four days; but in some mysterious way it broke out again, and he could not make out where the liquor was coming from, until the officer commanding the R.E. Company reported that the Norton's well-tube was missing from his stores. On another occasion, during an Indian frontier campaign, large quantities of barrels of powder were ordered to be taken, and very

stringent orders were given with regard to the minimum supplies accompanying the force. However, the rear guard came across a mule with two barrels marked "powder" which some inquisitive soldiers found to contain beer, and they tapped one and finished it. Then they had to move on. They thought it would be rather awkward about the other barrel, and it was left on the road. It was picked up by a native sapper company and brought in, being then recognised from the marks on it as belonging to the general's baggage. The general's A.D.C. was sent round to our tent to thank us for having brought this barrel in, and we innocently refreshed the A.D.C. with a glass of beer. He said: "So you have got the other barrel, have you?" We had to sacrifice that barrel. So these things often happen. Again, on the march to Kandahar the same grievance was met with. General Chapman, who was General Roberts's Chief of Staff, one day when on the line of march, had every vehicle, wagon and even dhooley, used for carrying the sick, opened, and great was the cry when the large piles of delicious jams, foods, and drinks were dumped out and left on the roadside, the men having to march away and leave them there.

Captain E. D. SWINTON, in reply said:—There is one thing which appears to be a decided comfort which I have forgotten to mention. This is "calorit." Here is a tin of "calorit," which really contains food and fuel in one. It consists of an outer and inner tin. Within the latter is tinned food of any desired kind; between the two tins is unslaked lime; at the bottom is a compartment of water. By punching holes through the water compartment to the lime the water is allowed to reach the lime and slake it. The result is that in 5 minutes the food becomes quite hot, thus providing a hot meal instead of a cold one. I mention this because I believe the Germans have tried it in S.W. Africa, and also at the landing manœuvres near Hamburg. Whether it could be used generally on a large scale as a ration is perhaps doubtful. Though very convenient, the extra weight of the water and lime and double tin has to be carried about as well as the food and its tin. This is a serious matter, of course; and then also there is the extra expense, which has to be taken into account. It undoubtedly would be a great convenience to have such rations when fuel is scarce and time is pressing.

The CHAIRMAN (Colonel the Hon. J. T. St. Aubyn, Commanding the Grenadier Guards):—I have, as Chairman here to-day, to wind up the discussion which has taken place; but after the extremely complete and, I may say, exhaustive way in which the subject has been treated by the lecturer and the remarks we have heard from those officers who have been good enough to give us the benefit of their experience, there remains very little for me to say in the way of summing up. We all know that on active service hardships are inevitable, and we are all prepared to share them; but it must often have struck us that in some cases some forethought and preparation would have considerably lessened the discomforts which we had to endure. If we think so, and we have had occasion to come to this conclusion in our time, what must those have thought who were soldiers 60 or 70 years ago? I know it was then considered that the equipment which the British soldier wore in peace time was adequate for him in war time, and in whatever part of the world and in whatever climate he was carrying on active operations. I know an officer who has told me that he landed, during the Mutiny, on the shore of Madras in the full European uniform of an officer of the Royal Artillery; and if we are to judge by the pictures we had of the fighting which took

place in South India early in the last century, when the men had to fight in tunics or coatees of the European pattern, with high collars and bound up in the usual paraphernalia of belts of all descriptions, it is hardly possible to conceive of any equipment, except perhaps a fur coat or a coat of mail, which could have been less suitable for the work they had to do. Our Army has to fight in nearly every climate under the sun. We have to be prepared for the rigorous cold which Colonel Younghusband lately described in a most interesting lecture as existing in Tibet in the winter. They have also had to fight on the burning and dry sands of Eastern Africa, and in the equally hot and poisonous, but also damp, climate of West Africa. There is no part of the world, in fact, in which they have not had to fight. Therefore we require many more kinds of equipment than are used by an Army which only contemplates carrying on a campaign in Europe. The figures quoted by Captain Swinton of the ratio of losses by disease to those caused by wounds must show us how very important it is to guard in every possible way against those losses. And the last two or three examples in the list which he mentioned show what an immense amount may be done in that direction by the exercise of due care and strict attention. With regard to water, that of course is all-important, for I believe there is no means of conveying disease, especially to the intestines, so efficacious as water; and the precautions so lucidly hinted at and explained by Captain Swinton, though it may not be possible to carry out a great number of them on all occasions, may in a large measure be employed, as no doubt they are in these days. Of course, we know that the question of the latrines is a most important one, and there are plenty of rules regarding them. I believe one of the greatest reasons for the efficacy of latrines is the strictness with which those rules are applied; in fact it is largely a question of discipline. Well-trained troops, with whom a high standard of discipline prevails, will exhibit much less inclination to deviate from the rules laid down for the use of latrines than those where the discipline is not so good. There is another subject which of late years, as regards disease, has become most important, and has been made more so by scientific researches on the subject, and that is the subject of flies. Many of us who have soldiered in hot climates must know what an intolerable nuisance they are; but this is the first time I have ever heard of a remedy which is likely to prove efficacious. I have seen all sorts of things tried: flypapers innumerable, and blowing them up with gunpowder; but there is no doubt that they derive a great deal of the poison with which they contaminate human beings from the excreta and the refuse which must be present in a camp. And no doubt if strict orders and rules were laid down as to covering up those sources of contamination, a great deal of the poisonous effects of the flies might be diminished. Clothing, as I said just now, has been improved greatly, and I believe is improving every day. The lecturer said it was very comfortable to have a muffler under the collar because of the harshness of the khaki collar. Why should we have a harsh khaki collar pressing on our necks? The first thing men do in hot countries and in hot weather in to unbutton their coats and turn their collars down. In one particular branch of the Army turn-down collars have been tried, and I can speak from personal experience and say they are infinitely more comfortable than any stand-up collar, and with the addition of a slight collar to the flannel shirt would add greatly to the comfort of troops on the march. There is another question to which he also alluded, and that is the comfort of pantaloons compared to trousers. If any of us were going to shoot to-morrow or going for a

long walk in the country, I think the large majority of us would not dream of carrying out those exercises in trousers, even with the addition of leggings, such as men used to wear, or with putties tied over them. We would wear knickerbockers, or even pantaloons. I have worn pantaloons, and they are very comfortable; the great thing is to avoid the drag of trousers on the knee and loose cloth flapping about our legs, especially when it is wet. I think if all the men wore pantaloons or knickerbockers in service dress it would add materially to their comfort. The lecturer went very fully into the subject, and mentioned a number of things, some of which I hope you will forgive me for alluding to. He speaks about drinking at improper times. We all know how apt the men are to empty their water bottles directly they start on the march in peace time. Besides drinking too soon, I think care is necessary to see that they do not begin to eat too soon. I have known cases where men have been provided with some light refreshment to carry during a long field day, which they knew would last until 4 or 5 o'clock in the afternoon, and within an hour of leaving camp they have consumed their refreshment, with the result that at 2 or 3 o'clock in the afternoon they find when the operations are over for the day they have to march back for some three hours to camp with no prospect of anything to eat, and that is the time when they want it. They did not want food 1½ hours after breakfast, but after four or five hours' manœuvring, so as to enable them to carry on further operations. I have known it prove very efficacious to make a rule that no man shall eat refreshments during the day until leave is given him by an officer. There is another very important point which the lecturer alluded to, and that is weights on service. We know what happens to superfluous weights when it comes to active service; everything superfluous is thrown away. And no doubt weight has an enormous effect on the marching power of a man, and it is curious in that respect that although foreign Armies have much less sturdy physique than our men, yet at the same time they have been up to a recent period accustomed to carry a very much larger weight. I have heard foreign officers remark on the small weights which our men carry in the field compared with what they were accustomed to see in the case of their own Armies; but from the table which Captain Swinton has prepared it seems that these weights have now been lessened very much on the Continent. Still, I think the heaviest equipment carried by any Army in the field is now about 9 lbs. more than we carry in the English Army. As to shelter, I suppose many people have great experience of shelters during the last war, and no doubt much is to be gained from what we have heard and read about the Russians and Japanese in the way of shelters, at all events in cold weather. Cooking, of course, is absolutely essential, and it would be a good thing if everybody could cook; but that complaint is not confined to the Army. We have suffered from bad cooking in other places besides the Army. Then with regard to rations. It would be a great convenience if you could have a form of ration comprising everything needful, which a man could carry for himself, enough to last two or three days. I think I have read that some sort of ration has been invented, which was alluded to not long ago, consisting of a tin containing sufficient food of various kinds to last a man one day. If such a ration were adopted, I think it would be of very great use in ensuring food to the men on their arrival in camp. There is no doubt that one of the greatest comforts during the last war was the existence of the Field Force Canteen; and I hope in any future campaign either that institution or something of the same kind may be provided. I think we owe our thanks to Captain

Swinton, not only for having consented to come here and give us this lecture, but for the very great care and trouble which he has bestowed on the subject. I think it would be difficult to comprise within the limits laid down for a lecture in this theatre more useful information and instruction, and I think we must all feel it has been of a most interesting character. I shall try and remember as much of it as I can myself, and I think what he has told us must prove most useful to anybody who has to face the problem of getting the most efficient work out of a force employed in active operations in the field. Gentlemen, I ask you to join with me in expressing our most cordial thanks to Captain Swinton for his lecture.

THE IMPERIAL YEOMANRY IN 1905.

By Colonel H. LE ROY-LEWIS, D.S.O., Hampshire Carabiniers, Imperial Yeomanry.

Thursday, 13th April, 1905.
Major-General Sir A. E. TURNER, K.C.B., in the Chair.

THE wisdom of drawing public attention to the Imperial Yeomanry at this particular period of its existence may very properly be doubted. We have been walking along a veritable *via dolorosa* of so-called Army Reform, during which progress it has been possible entirely to recast the conditions of service under which our Yeomanry Forces exist, and this scheme, for which Mr. Brodrick is mainly responsible, though by no means a perfect one, has so far proved on the whole to be successful.[1] During the same period we have seen our Regular Forces thrown into the melting-pot, the Militia threatened with extinction, and the Volunteers destined to be smothered with uninvited kindness. The Yeomanry, however, still continues to exist, and is not at present threatened. We may therefore ask ourselves, who are all of us presumably well-wishers to the Yeomanry, why we should insist upon opening out controversies which had now better be stilled, and by so doing endanger the very existence of the force in which we are interested. Our duty at present would appear to be to preserve a discreet silence.

At the same time, we cannot forget that we are only one unit, and that the smallest, in our great Auxiliary Force Service, and, as we have now apparently reached the parting of the ways which lead on the one side to efficiency and on the other towards military decay, we must ask ourselves how we can best fall into line with any

[1] The progressive decline of the Yeomanry from 1870 to 1900 is best illustrated by the following figures; its revival is also clearly set forth by the figures of 1901 to 1905 :—

5 years' average	1870-1874	13,400
,,	1875-1880	12,000
,,	1881-1885	11,100
,,	1886-1890	10,900
,,	1891-1895	10,200
,,	1896-1900	10,100
1st January	1901	13,201
,,	1902	21,840
,,	1903	26,372
,,	1904	27,054
,,	1905	26,811

scheme of Army Reform, and by so doing help to secure the general efficiency of the armed forces of the Crown.

To clear the ground for any future discussion, the first question which must be asked is: What is the exact tactical place that we have to fill in the general military scheme, and what function in any plan of defence is likely to be that of the so-called Imperial Yeomanry? This question is not by any means so easy a one to answer as it may appear to be.

When the Yeomanry Force of this country was reorganised in 1901 there were two rival schools ardently striving for mastery at the War Office. One of them favoured the idea of turning Yeomen into cavalry, the other of creating a new and formidable body of mounted infantry. There was a great deal to be said for the ideas of both sides; but our fatal national genius for compromise did not allow us to accept the whole-souled theories of either protagonist, so a *tertium quid gaudens* was adopted, and the Yeoman appeared in a new character—that of a mounted rifleman. The exact inwardness of this change is difficult at first sight to understand, but one of its principal features was to prevent the Yeoman from thinking too much of his knightly traditions—sword, lance, and battle-axe were to be hung up in the ancestral hall; the rifle alone was to be supreme. The rifle, it is true, was to be slightly tempered by a concession to the old Adam in the shape of a bayonet. But within two months of their appearance the bayonets were withdrawn, only, however, to reappear on the scene again some three years later, but on this last occasion not in an aggressive form, as their essential adjuncts, in the shape of frogs and belts, were divorced from the issue of the miniature *arme blanche*. The real object of this halting policy was to discourage the cavalry tradition which for a century or more had been so zealously fostered by our military authorities. Cavalry officers had always acted as Adjutants, cavalry non-commissioned officers had always been Instructors to the Yeomanry, but in the twinkling of an eye—merely by the issue of a bayonet—the whole traditions of the Yeomanry were to be changed. All these attempts paid very little attention to the power of sentiment and of tradition; but besides these considerations, there are some weighty practical objections against the extinction of the cavalry spirit amongst Yeomen. In order to appreciate this more fully, it may be useful to understand what are the duties of mounted men in the field. These appear to be of two kinds:—

1. *Detached Duties:*—
   Divided into:—(*a*) Reconnaissance.
   (*b*) Outpost duties.

2. *Combined Duties*,
with again a twofold division:—(*a*) Duties on foot:—The attack and defence of positions.
(*b*) Duties on horseback:—The charge.

Mounted infantry are supposed to be capable of doing 1 (*b*) Outpost duties, and 2 (*a*) The attack and defence of positions.

Mounted rifles, if I read the text-books correctly, are intended to perform 1 (*a*) Reconnaissance, 1 (*b*) Outpost duties, and 2 (*a*) The attack and defence of positions; whereas cavalry can perform all four of the above-mentioned duties, the charge 2 (*b*) being their peculiar and distinguishing attribute.

In my opinion, these fine-drawn distinctions are worthy of the Scholiasts. The rough test of active service will blow to the winds all these purely imaginary subdivisions, and will leave us face to face with a mounted man, who will be expected to undertake all the duties which a mounted man is ever supposed to perform. On active service horse-flesh is expensive and difficult to obtain; units of mounted infantry, mounted rifles, and cavalry are easily broken and mixed up, and it is quite conceivable that an infantry division will start on an adventurous career with nothing but mounted infantry or mounted rifles to cover its front. When this happens, the charge, a prerogative kept by our text-books sacred to cavalry, may often be expected even from mounted infantry.

But, it will be objected, it is quite impossible to expect such partially trained troops as Yeomanry to perform the complicated evolutions of a cavalry division, which may best be seen on some peaceful field-day upon Salisbury Plain. The contention is no doubt quite correct; but it must not be forgotten, in dealing with the sacred subject of the charge, that its pace is supposed to be regulated by the fastest pace of the slowest horse. Now on active service this pace is invariably a walk, and not a fast one at that, so that the thundering charge, six inches knee to knee, becomes an unattainable ideal, and the charge that is actually delivered on such occasions may well be undertaken by the lower grades of mounted troops.

It would be impossible for me to follow out with any great elaboration the thread of this argument, because my paper, which is intended to deal generally with the Imperial Yeomanry, would assume portentous proportions, and would degenerate into an essay on military art. I do not wish to appear to take sides in this discussion as to the exact name by which an Imperial Yeoman should be known, but I should like all the upholders of the extreme "mounted infantry" view to remember that a Regular soldier who joins the mounted infantry is a trained infantry soldier, and that a recruit Yeoman is, in ninety cases out of a hundred, not a trained soldier of any kind.

We have now reached a position in which we may confidently say that we do not exactly know what tactical *rôle* the Yeomanry will be expected to fill if called upon for active service, and I should like to draw your attention to some facts relating to the past of this force and to its evolution towards the present period of comparative prosperity. In doing this I shall endeavour rather to deal with the broad issues raised by our subject, so as not to lose sight of the general problem in a maze of details, which can have but little interest for the student of the question. The consideration of the evolution of any one branch of our armed forces must necessarily resolve itself into a general review of the history of our country, and of the different aspects in which our military problems have presented themselves to those in high quarters. We shall therefore find that the history of the Yeomanry resolves itself into some clearly marked epochs. It is, however, very difficult to get any reliable information as to the early history of the force, considered as a whole, and I shall not therefore dwell on the extremely interesting period covered by the Napoleonic Wars, when the Yeomanry reached its zenith, nor upon the very dull period of reaction which followed the Treaty of Vienna down to 1870, the date when the War Office took over the important duty of looking after the welfare of the Auxiliary Forces.

It may be of some interest to give the numbers of the Yeomanry in the following years:—

Year.	Troops.	Officers.	Yeomen.	Total.
1804	395	1,334	19,291	20,625
1824	506	1,666	25,915	27,581

These figures seem to mark the top of the wave during the period of the Napoleonic Wars and immediately after them. In 1828 and 1838 great reductions were made in the strength, so that just before the Crimean War we find the following numbers:—

Year.	Troops.	Officers.	Yeomen.	Total.
1853	254	924	14,292	15,216

In 1831-2 the cost of 19,047 Yeomen was returned at £145,679 0s. 0½d. This is the only separate return of their cost that can be found before the War Office undertook the management of the force.

The Yeomanry appears to have been raised in 1761 and embodied in 1797. In 1799 the Pembroke Yeomanry were called out to resist a French invasion at Fishguard. In 1804 an Act of Parliament, which is still the Statute Law, was passed, and this Act of the Legislature deals very minutely with the duties and privileges of the Yeomanry. It has not yet been repealed, and may cause some confusion under our present changed conditions if its provisions are ever put into operation.

From 1828 to 1871 the history of the Yeomanry resolves itself into a series of disbandments, and we need not examine with any amount of care the colourless annals of this period.

The Franco-Prussian War brought out the advantage of the squadron system in cavalry organisation, and so we find that over twenty years after this event the Yeomanry was remodelled to meet some more or less passionate and popular desire for Army Reform prevailing at that time. The principal effect of this comparatively harmless shuffling of the cards was that the troop system gave way to the squadron organisation. The troop system, which prevailed when I joined, gave one Permanent Staff Sergeant to every field troop. Some money was saved by the squadron system coming into vogue, and the savings thus realised were spent on increasing the contingent allowance, for by this means one Permanent Staff Sergeant was made to do duty with several field troops. A singularly unintelligent arrangement was also arrived at whereby one Adjutant was made to do duty with two regiments, thus depriving two commanding officers of any power for furthering the good of their units. It was under this extraordinary system of organisation that the Yeomanry of this country was working when the Boer War burst upon us.

It may not be uninstructive to examine in some detail the changes which were effected by this transition from the troop to the squadron system. In 1892, when the troop system was at its height, there were 39 regiments of Yeomanry, with an establishment of 14,000, and an enrolled strength of 10,500, costing the country about £74,000. The details of the way in which this £74,000 was spent are as follows:—

A.	Regimental Pay:—		
	Permanent Staff	£21,500	
	Yeomen	31,400	
			£52,900

B. Extra Pay and Allowances:—
Contingent @ £2 ... ... £18,350

£71,250

This money provided thirty-nine Adjutants and two hundred and thirty-nine Permanent Staff Sergeants. The remaining £2,750 was spent on objects which need not arrest our attention.

In 1899, when the squadron system was in full swing, we find that there were 38 regiments of Yeomanry in existence with an establishment of 11,800 and an enrolled strength of 10,100, costing the country about £75,000. The total cost and numbers differ very little from the figures of 1892, but the way the money was spent is different. We find £75,000 distributed as follows:—

A. Regimental Pay:—
Permanent Staff £14,000
Yeomen 33,000
——— £47,000

B. Extra Pay and Allowances:—
Contingent @ £3 ... ... £25,500

£72,500

The small balance of £2,500 does not call for any particular explanation.

Under this scheme only 19 Adjutants and 148 Permanent Staff Sergeants were supplied to the Force. The whole of this famous reform consisted in starving the establishment of the Permanent Staff and increasing the contingent allowance. Another saving was also effected by abolishing the Yeomanry School at Aldershot; but this change is not included in the figures we have been considering. It is difficult to understand why a scheme of this description should have been hailed as a great step in the progress of the Yeomanry; but in those days our ambitions were very limited, and we were only too glad if our threatened total extinction was temporarily averted.

In the autumn of 1899 the Boer War commenced, and it took us two months to realise the comparatively elementary truth that it might be better to oppose mounted troops with the same description of soldiers. The question was how to do it. Our Regular Cavalry and available mounted infantry were squeezed dry, and it was then realised that the Yeomanry alone could supply any large numbers of mounted men. The number of effective Yeomen in 1899, exclusive of the Permanent Staff, was as follows:—

Officers.	Yeomen.	Total.
635	9,312	9,947

The Home Yeomanry supplied to the South African Imperial Yeomanry:—

	Officers.	Yeomen.	Total.
	224	2,789	3,013
Percentage volunteering for Active Service ..	35%	29%	30%

This small and starved force therefore gave the country some 30 per cent. of its whole numbers. I am well aware of the fact that

these figures do not compare favourably with the magnificent totals shown by our Militia, but it must not be forgotten that they had the enormous advantage of being able to volunteer by complete units, whereas Yeomen had to do so individually.

The most important service rendered by the Home Yeomanry during the South African War was the provision of a machinery by means of which we were able to raise mounted men. When we come to look at this aspect of the case, we find that the cadre of the Yeomanry Force was able to put into the field the following numbers:—

Officers.	Yeomen.
1,393	34,127.

The small nucleus of 10,000 Yeomen in this country raised and sent to the seat of war more than three-and-a-half times as many men as were then serving in England. Mistakes were made, and plenty of them, in the raising of this force, but the marvel is that there were not more. Still, the fact remains that a great effort was demanded from the Yeomanry, and that this effort was made. It is not very much to be wondered at that in maturing his schemes for Army reorganisation in 1901 the Secretary of State for War should have stated that he intended to put his money on the Yeomanry, and thoroughly to remodel the Force by bringing it up to date, as far as our faulty system of Army organisation would allow. It would be impossible for me within the limits of this paper to go into any detail on the reorganisation of the Yeomanry, but suffice it to say that much was asked from and much was given to the Force.

In 1899 the establishment was 11,800; in 1901 this was raised to 35,000. In 1899 the period of training was six days in billets; in 1901 sixteen days in camp were required. The horse question was treated with liberality and wisdom; provision was made to teach the men how to ride, and an adequate sum was allowed for compensation to men who lost their horses in the public service. The Permanent Staff were largely increased, one Adjutant and five Sergeants being allotted to each regiment; their pay and allowances were also placed on a satisfactory footing, though the question of pensions for the Sergeants of the Permanent Staff is not yet settled. Perhaps the most momentous change in the organisation of the Yeomanry was the introduction of a uniform establishment, the advantages of which, from the point of view of higher organisation, cannot be overestimated. In 1899 there were 38 regiments; 16 had an establishment of 200 of all ranks, exclusive of Permanent Staff, 10 of 300, and 12 of 400. In 1901 it was resolved to raise the establishment to the uniform level of 596, subsequently reduced to 476. The wisdom of this change can hardly be doubted, as there are now only four regiments, out of 58, that are more than 100 below, and there are 22 regiments above their establishments. The Yeomanry School of Instruction was also re-established; but it must be remembered that the pay of the individual Yeoman was reduced from 7s. to 5s. 6d. The Militia and Yeomanry Act was passed in August of 1901, and introduced far-reaching changes in the constitution of the Force. Under its provisions the officers of the Yeomanry are at all times placed under Military Law. The Yeoman is made liable to compulsory training and to embodiment in case of a National Emergency. The Yeoman is also enlisted for a period of

three years, and can only obtain his discharge by purchase; whereas under the old conditions a Yeoman could give notice of his intention to leave the Force, and in fourteen days he was freed from all liability for Military Service. Such was the general outline of the scheme for Yeomanry reorganisation, which was first promulgated in April of 1901, and fully amplified in the Regulations issued in 1903. It may be of some interest to draw attention here to a comparative table which will show the difference that was made in the Army Estimates for 1904 when compared with those of 1899, though it must be borne in mind that the Estimates for the former year were not framed on a 35,000 establishment, but on one of 28,000; this change of establishment was brought about by the new order of things at the War Office in April of 1904. The point which is of importance is to appreciate the fact that the reforms of 1892 were only in the nature of a shuffling of the cards, whereas those which followed the publication of the Royal Warrant of April, 1901, were of real importance.

	1899. £	1904. £
A. Regimental Pay:—		
Permanent Staff..	14,000	45,000
Officers and men	33,000	175,000
B. Regimental Allowances:—		
Contingent	25,500	91,000
Command..	170	900
Postage	20	—
Contingent to Adjutants ..	424	—
Servant allowance to Adjutants	348	1,000
Captain's contingent allowance ..	138	700
Officers under instruction ..	300	Mess Allow. 4,000
Horse allowance	—	123,000
Allowance for riding lessons ..	—	5,800
,, recruits riding ..	—	3,300
Regimental transport	—	2,000
Travelling to ranges	—	3,000
Signalling allowance	—	700
Storeroom allowance	—	5,200
C. Miscellaneous Charges:—		
Clerks to Lieutenancy	50	
Compensation for loss of horses, etc.	210	7,500
Medical bills, gratuities for injuries, etc	850	
	75,010	468,100[1]

[1] The total amount spent on the Yeomanry, in addition to that stated above, which is an abstract of Vote 4 only, was:—

1898-1899 - - - - - - -	£115,350
1904-1905 - - - - - - -	£602,955
1905-1906 - - - - - - -	£546,800—Estimate on Force reduced from 35,000 to 28,000.

A glance at this table will enable us clearly to understand where the money has gone. There is no doubt that a very great increase has been incurred in the amount we spend, but I think that the money has been well spent and that we really get value for it. The success of the new Yeomanry movement is undoubted, for, according to the last returns of the Director-General of Recruiting, the Yeomanry is only 250 men, or ·1 per cent., below its establishment; whereas the Militia and Volunteers, I regret to say, are not in such a satisfactory condition, the shortage in the Militia being 37,000 on an establishment of 123,500, or 26 per cent. The Volunteer shortage is also great, but as the establishment in this case is an imaginary one, no useful purpose can be served by drawing attention to it.

We have sounded the praises of the Imperial Yeomanry, but I do not want you to go away under the impression that all is well with this force, so I shall now call your attention to its shortcomings and needs.

The wants of the Yeomanry at the present time are so numerous that it is difficult to make a selection from them. I shall therefore only state for discussion to-day some of our most urgent requirements, those needs, in fact, which, if not met, will make us a force incapable of fulfilling the trust imposed upon our branch of the Service. I am well aware of the fact that our shortcomings are shared by the other branches of the Auxiliary Forces, and that we do not suffer either alone or in silence. Still, I must present my case from the Yeomanry point of view alone, and in so doing I do not wish it for one moment to be supposed that I am not anxious for our fellow citizen soldiers to share in the reforms which I am about to suggest. I would indeed rather present my case as one calling for immediate remedy alike in the Militia, Yeomanry, and Volunteers, as the disease is the same and the remedy very similar.

We have seen that the condition of the Yeomanry has gradually been improving, but this improvement has been halting, and only gained after the most tremendous efforts. The reason for this has, in my opinion, been due to a lack of intelligent apprehension as to what function our civilian army is destined to play in the defence of the Empire. If it were clearly realised that the Regular Army, owing to its small numbers, will be totally inadequate, when our national existence is imperilled, to perform any function other than that of a stop-gap, we should have advanced many steps in the direction of the understanding of our military problem. Surely we have had object-lessons enough during the last few years. The South African War, one of the smallest contests we have ever had—if we consider the national magnitude of our opponents—or are ever likely to have, called for a provision of over two hundred thousand Irregular soldiers. The next time we have to wage war it will probably be against a first-class military Power, and not against two of the smallest States in the world. The Manchurian campaign is another object-lesson for us. We have, in considering its operations, to think in millions of men; and if ever we are engaged in such a struggle, from where can we expect to get a sufficient supply of raw material?[1] The answer must be, from the Auxiliary Forces. If that is the case, it is surely a good

[1] It is officially reported that Russia has had to place in the field 832,000 men since the outbreak of hostilities in Manchuria.

thing to encourage and foster these forces to the best of our ability. It may, of course, be said that all Irregular soldiers are inferior to Regular troops; and though this may be an arguable point, I am quite willing to concede it. Still, we must look at what is practicable in our own special case, and I contend that it is not possible to expect from this country any comprehensive system of enforced service for use over the seas.

The first and most pressing of all our needs is found in the problem we are faced with relating to the shortage of officers. According to the last returns, we had an establishment of 1,596, and only 1,237 enrolled officers—a shortage of 359 in the commissioned ranks, or about 25 per cent. There can be no doubt that without a full establishment of officers the Yeomanry must be considered inefficient. The question is, therefore, how are we to remedy this state of things? I believe that the remedies lie close to our hands.

The Act of Parliament of George III., which is still in force, exempts members of the Yeomanry from the ballot for the Militia, allows them to ride through a toll-bar when in uniform without paying, and also relieves them from the tax on powder for the hair. These privileges were no doubt highly valued in 1804, the date when this Act was passed, but as Yeomen are not now liable for the Militia ballot, as toll-bars have been abolished, and as hair powder is no longer in great request, these privileges have ceased to have any practical value. Why not then give us some fresh privileges? Might it not be possible to exempt an officer serving in the Yeomanry from filling the office of High Sheriff? The game licence and others, which do not yield a large sum to the Exchequer, might be remitted to Yeomanry officers, and other small, though highly valued, privileges might be granted to them through such remissions of taxation as would make no appreciable difference to our national income. There is one way of insuring a supply of officers which would be most effective: that of not allowing any new Deputy-Lieutenants to be appointed who either will not give their services to the Yeomanry, or find substitutes for that purpose. It may, of course, be argued that very few new Deputy-Lieutenants are now made, owing to the fact that there are many supernumeraries on the establishment; but it must not be forgotten that there are over five thousand of these dignitaries in the United Kingdom, and that they must all be replaced when the existing ones fall out. Therefore the few officers whom we now require might easily be found from this source alone in the course of time. I should also favour making it obligatory on all candidates for cavalry commissions to qualify by service in the Yeomanry. It is true that this method would not at the present juncture materially help us, as there are very few candidates for cavalry commissions; but in more normal times the remedy would no doubt be particularly effective, as nearly all our shortage is in the subaltern ranks.

The number of our officers is, of course, of the utmost importance; but their training is also a subject which must not be passed over lightly, and great improvements have taken place in this respect. The Yeomanry School was re-established in 1902—after being abolished on the introduction of the squadron system—a great step in advance. Still, the school only provides excellent elementary instruction, so that now the field officer and the subaltern have to go through what

is practically the same curriculum. This is not sound, and some means of imparting advanced instruction should be devised.

If the supply and training of our officers are of consequence, the provision of horses on mobilisation must also be considered a vital point in the organisation of the Yeomanry. In this, I regret to say, things are not all well with us. The Yeoman, it is true, receives £5 at his yearly training for the provision of a horse, but no further effort is made by the Government to earmark an animal to be produced on mobilisation. It is, of course, conceivable that, when the order to mobilise is issued, a large number of owners of horses will appear at the point of concentration with their own animals; but this is problematical, and in any case the number of Yeomen owning their own horses has not gone up in recent years.

The figures at annual inspection are as follows:—

—	Horses.		Total.	Percentage of Horses Owned to those Hired.
	Owned.	Hired and Lent.		
1876	7,194	2,493	9,687	74%
1899	6,340	2,629	8,969	70%
1903	11,381	10,667	22,610	50%
Government ...	562	—	—	—
	11,943			

The above table shows clearly that the number of men owning their horses has diminished in an alarming manner, so that no reliance can be placed on our British Cossack bringing his own horse to the place of mobilisation; indeed, the Yeoman who owns a horse would probably be very likely to leave it at home in such an emergency. We shall therefore have on mobilisation a fine body of infantry trained as cavalry, but not a horse. The Remount Department tells us that it is in a position to provide all the horses we may want; but I have my doubts on this point, and I should much prefer to leave the provision of horses in the hands of officers commanding regiments of Yeomanry. This could not be done without some money being expended on the service. Now we want on mobilisation some twenty-six thousand horses, and I think that if a registration fee of ten shillings per horse were given, we might make such arrangements as would ensure the production of these horses at a total expense to the country of some thirteen or fourteen thousand pounds a year. When we consider that the Yeomanry costs over five hundred thousand pounds, such an arrangement would appear to be cheap. It is argued that the Government scheme for the registration of riding horses was not a success, and this I am willing to admit; but at the same time, Yeomanry officers have better opportunities of securing the sympathies of the class which owns riding horses than the Government ever had. But even if this is not the case, it does not strike me as a forcible argument to state that inasmuch as the Remount Department once made a hopeless failure of its scheme for the registration of riding horses, it will therefore in the future, the conditions being practically unchanged, make a complete success of it.

The importance of a Reserve for the Auxiliary Forces was recognised by the War Office when a large sum of money, amounting in 1903-4 to £150,000, was set aside to pay some fifty thousand Militiamen in the Reserve. This was an excellent plan and a step in the right direction; but nothing was done for the Yeomanry, though it was fully recognised that since Yeomen have the same legal liabilities as Militiamen, they ought to be paid the same retaining fee. Still, the expense involved made our authorities timid, and instead of extending the principle of a Reserve division to the Yeomanry, the newly-formed Militia Reserve was knocked on the head, enlistments into it were stopped, and the Estimates for 1905-6 provide only forty thousand pounds for this service. There is one thing quite clear, and that is, if the Auxiliary Forces are ever called upon to take part in any future campaign, they will badly want a Reserve. If this Reserve is not forthcoming in the time of need, their effectiveness will be seriously crippled. We shall then have to witness for the second time the wasteful process of scrambling for untrained men at the last moment, whilst offering them an exorbitant rate of pay. If we choose to advance a moderate sum for a proper Reserve in times of peace, we shall avoid all the waste and confusion that must occur in times of war, when no adequate provision has been made for Reserves. But there is one thing quite certain, we shall not get a Reserve without paying for it; and it is also equally certain that no Yeomanry regiment could take the field on its first mobilisation without calling upon some extra men to fill the places of those who, for various reasons, are unable to accompany their unit on active service. We shall therefore feel the need for a Reserve as soon as the Yeomanry is mobilised; when it has taken the field, the necessity for Reserve men will be greatly increased.

The question of the supply of saddlery is also a very important one. At the present moment, the Yeomanry being up to its establishment, this service must be paid for out of the yearly Government grant or contingent allowance of £3. Saddlery is by far the most expensive item in a regimental budget, and as the new saddles which have been supplied gratis for the purpose of raising regiments up to their increased establishments get worn out, the expense involved in replacing them will cause financial trouble to commanding officers. The War Office, having foreseen this difficulty, has wisely directed us to form a sinking fund to amortise our saddlery. This is an excellent suggestion; but as at the end of each financial year all the Government funds of a regiment have been spent on other objects, it is rather difficult to see whence the money is to come. What will probably happen is that old saddles will be patched up and made to do duty; but they will be quite unfit for service in the field, and thus another cause of inefficiency will be added to our already by no means depleted supply of shortcomings.

The provision for mobilisation stores is not perfect, but is decidedly in advance of that prevailing before the South African War. At that time no arrangements were made; now we have, at all events, thought out the subject, and an official handbook of forty-four pages is published, giving at least all the necessary information. In this book it will be found that a certain number of mobilisation stores are provided by the Government, but that the remaining ones must be bought by regiments, a fixed sum of money being paid to them on mobilisation for

this purpose. It is quite true that this is not an ideal arrangement, for no regiment can afford in peace time to purchase the stores required; and it may further be urged with some truth that the provision of such articles when war is imminent would be a difficult matter. Still, to make the Yeomanry alone complete in all these details, not less than one hundred and twenty thousand pounds must be found. The Militia and Volunteers would, if this were done, justly press their claims to be at least as well provided as the Yeomanry, and the result would be the expenditure of several millions of public money. The best solution of this difficulty appears to be the grant of a retaining fee to tradesmen to cover their loss of interest by being required to keep mobilisation stores in stock, and thus we could be certain of a source of supply for our requirements in time of war, without throwing too great an additional burden on the Exchequer. I am not alarmed at the prospect of having to find transport on mobilisation, as I feel convinced that country Yeomanry regiments at least would always be able to put their hands on suitable carts and waggons.

To insure uniform and progressive training in our force, a proper system of inspection should be adopted, and the present arrangements cannot be said to be satisfactory. Stray cavalry officers are pounced upon and sent hither and thither to write inspection reports, and then never again see the regiments upon which they have reported. The great difficulty in dealing with this subject is that nearly all regiments train at the same time, and I remember in one year when I was at the War Office ten regiments had to be inspected on the same day. We should, perhaps, before offering any suggestions on this critical point, wait until the new scheme for the administration of the Army has had time to develop; but I am not full of hope that this difficulty will be overcome. No department for inspection should be appointed *ad hoc*, because it is evident that for a short time its *personnel* would have to be very large, whereas for the rest of the year there would be nothing for the inspecting officers to do. Perhaps the best solution of this difficulty would be to appoint competent Yeomanry officers to act as inspectors for certain areas, though this is by no means an ideal towards which we should strive. The Estimates for 1905-6 provide for three Staff officers for Imperial Yeomanry, but it is difficult to criticise this departure, as we are told that "these grades are new, and no rates of pay have yet been assigned to them."

The last need of the Yeomanry to which I shall draw your attention, though it by no means exhausts the list, is one shared by the other branches of the Auxiliary Forces, and is by no means peculiar to our wants. The administration of the Yeomanry by the War Office is not suited to our requirements. This subject is a very complicated one, and as it is intimately wrapped up in our whole system of Army administration, it will be therefore quite impossible for us to discuss the matter fully to-day; I can only hope faintly to sketch the outline of my argument.

The War Office is—we have it on the authority of the Chief of the Staff—at present divided into four water-tight compartments. One of these compartments is occupied by the Adjutant-General and his staff. This high official deals only with questions affecting the *personnel* of the Army, yet it is in this water-tight haven that we

find the official representative of the Auxiliary Forces. The Adjutant-General is, and rightly so, the champion of the Regular Forces, but even he only deals with certain kinds of questions relating to them. Therefore we suffer under a double disadvantage. In the first place, our official champion is not likely to pay any very great heed to the dangers and difficulties which threaten us, as it is primarily his duty to defend the interests of the Regular Forces; in the second place, our representative on the Army Council, the Adjutant-General, may never hear of some change that has taken place in one of the other water-tight compartments—let us say in that of the Chief of the General Staff. Thus some momentous change may be made in the conditions of efficiency of the Yeomanry, and it is quite conceivable that the representative of the Auxiliary Forces may never even hear of it. In the old unreformed War Office, into which the water-tight conditions had not yet been introduced, it was quite possible for Army Orders affecting the Auxiliary Forces to be published without the knowledge of the Inspector-General of these forces. Under the present arrangements it is not only possible but probable that this may take place. Besides, it is absurd for a body of citizen soldiers, which number some three hundred and seventy thousand men, not to have direct representation on the Army Council. If it is considered undesirable to disturb the present organisation of the Council, which is now conceded by competent authorities to be as near perfection as anything can be, it may still be thought advisable to hand over the advocacy of the cause of our Auxiliary Forces to one of the civilian members of the Council, who would have as his adviser a General Officer of high rank, assisted by a competent staff. I should select a civilian member of the Army Council to be our advocate for two reasons:—

(*a*) The Yeoman is a civilian first and a soldier afterwards. It is from not realising this elementary truth that the War Office has so often misunderstood us.

(*b*) The four military members of Council have their own specialised military functions, and the path of Yeomanry interests passes through all four departments.

A civilian member of the Army Council would thus appear to give us our best chance of synthetical treatment, though under him there should be a General Officer and an adequate staff of Auxiliary officers representing the various branches of these forces to advise the civilian member on military matters, and also to carry on the administration of the citizen Army. Nothing that is good will ever come out of the present hybrid system of administration, which, whilst it grants us a nominal representative at the War Office, yet takes especial care to label him as an inferior in the official hierarchy by giving him two-thirds less pay than he ought to receive, and by depriving him of any of those executive functions the possession of which might render him of real service and value to the Yeomanry.

When we have our cadres of officers quite full, our remount questions satisfactorily settled, a Reserve formed, mobilisation stores in adequate quantities, perfect saddlery, and an ideal system of administration at the War Office, there will still remain the question of training the Yeomen. At the present moment the majority of Yeomanry regiments go out alone in regimental camps and do a great deal of very useful work; but when they are called upon to go

through a field day, the training that is received by them in tactics, divorced from the co-operation of the other arms, cannot be considered instructive. It may with some truth be argued that during the short space of time allotted to the annual training, it is absurd to call upon Yeomen to perform exercises involving the employment of artillery and infantry, and that it is not reasonable to expect them to run before they can walk. It is not unnaturally asserted that the best use that can be made of their sixteen days is to teach them the elements of camp life and discipline. This is no doubt quite true; but at the same time it must not be forgotten that it is necessary to impart some elements of the knowledge of real tactics to Yeomen, and that the only way to do this is to make them co-operate with the other arms. If this is not done, lessons full of faults will be learnt, and knowledge thus acquired will be difficult to forget on the battlefield.

We are again led to the borderland of those problems which are the common ground of all our Auxiliary Forces, and are driven to the conclusion that a policy founded on the separation of their three great branches is faulty. We should rather strive to make co-operation between the Militia, Yeomanry, and Volunteers possible; Auxiliary camps composed of units of all arms should be encouraged, and the wild administrative jumble under which the Auxiliary Forces now groan should be simplified, and, as far as circumstances permit, made to run on the same harmonious lines.

When we are next attacked in any of our distant Colonies or possessions we shall require vast numbers of men to defend them, and it is difficult to see how we are to get these numbers unless we rely on the Auxiliary Forces.

A Bill has been read for the first time in the House of Lords making the Militia liable for service out of the United Kingdom when it is embodied. I believe that this Bill, if it is added to the Statute Book, will do a great deal towards improving the status of the Militia; and if legislation on similar lines were passed for the Yeomanry, our force would gain enormously in that public consideration which is the necessary precursor of all serious reform. I am well aware of the fact that the Minister in introducing this Bill restricted the use of the Yeomanry to the United Kingdom, but it must not be forgotten that in 1902 a Bill was introduced into the House of Commons providing for a restricted use of Yeomen abroad.

It is difficult to understand why the conditions that govern this problem have changed so essentially between December, 1902, and March, 1905. The establishment of Regular Cavalry is now 19,000, of whom 15,000 are serving abroad. There are also 5,000 Reservists of the Regular Cavalry. During the South African campaign we put 27,500 Regular Cavalry in the field. Therefore it may with some amount of confidence be predicted that when we next have to make a great national effort, the Yeomanry will be the first of the Auxiliary Forces that will be called upon to find men for active service.

If the Yeomanry is willing to accept the liability for foreign service in times of emergency, I feel certain that the War Department will rectify the shortcomings to which I have drawn attention by supplying us with the money necessary for this purpose. When the problem is placed fairly and squarely before Yeomen I have little doubt but that they will respond to their country's call. I am encouraged to hold this opinion when I look back upon the way in

which the Yeomanry accepted the conditions that apply to the Militia. We are now mounted Militia, as far as our legal status goes; and if the Militia are willing to accept the conditions of foreign service in case of a national emergency, I have no doubt that Yeomen will readily follow them. We shall then be able to deserve the title of "Imperial," which now only half belongs to us, and we shall perhaps in some future time of our country's need be able to earn the eulogy which Lord Castlereagh bestowed upon the Militia on the 11th of November, 1813, when he said that—

> "Parliament ought always to bear in recollection that it is to the Militia we owe the character we at present enjoy in military Europe, and that without the Militia we could not have shown the face which we have done in the Peninsula."

These words of praise were spoken about our old Militia Force. Since that time we have trod a hard and thorny road; the conditions of military activity have changed vastly in Europe, and we are faced with armed nations. I have enough confidence in the English people to make me believe that we shall not be incapable of solving the problems with which we are now confronted, and to my mind the solution best adapted to our case is to train our civilian population in vastly increased numbers as Auxiliary troops, to throw no obstacles in their way, and to extend towards them a generous measure of sympathy and of encouragement.

Colonel H. F. Viscount EBRINGTON, A.D.C. (Hon. Colonel, Royal North Devon Imperial Yeomanry):—Sir, I think all interested in the Yeomanry must feel very grateful for the paper which Colonel Le Roy-Lewis has read, and I am glad you have given me an opportunity of making a few remarks upon it. I agree with a good deal of it; but I am not sure that I see eye to eye with the author in all the arguments which he puts forward. In the early part of the paper the author spoke of the mistake in not training Yeomanry as Cavalry, and said the pace of the charge on active service, being the pace of the slowest horse in the troop, was only a walk, and that therefore no great amount of training was required to do that. That argument seems to me to be self-destructive, because if that is the case, and if no troops exceed a foot's-pace in shock action, it is not necessary to train any highly. Passing from that subject, I was sorry to hear in reference to the present and earlier rates of pay that he put the matter in a way which is capable of misinterpretation outside this room, although not by anybody who knows the circumstances. He spoke of the Yeomanry pay at present being 5s. 6d., instead of 7s. a day, as it used to be. That is quite correct; but for the 7s. a day the Yeoman used to find his horse and his forage. As a matter of fact, the Yeoman to-day is very much better off than he was then, and to that extent what is in the paper would be misleading to people who are not well up in the subject. I agree with Colonel Le Roy-Lewis about the great difficulty of the Force being a shortage of officers; but his suggestion as to Deputy-Lieutenants would not go as far as he thinks in filling it up. Five thousand Deputy-Lieutenants, the number given for the whole country, is not the establishment. The establishment is a good deal less than that; and the supernumeraries have got to be absorbed. In regard to the training of officers, it would be more advantageous that facility should be given to senior officers especially to make themselves

proficient in their business. No doubt there are too few officers, and there is a danger, if not a probability, of the Yeomanry being habitually short of officers. But I should say the fewer you have the better trained they should be. The instruction of officers is a difficult question; and it is a pity officers do not get more encouragement to attend schools and get attached to regiments. It is usually found by officers who do those things that it costs them a good deal of money; and although, owing to the kindness of the regiments to which they are attached, the officers who go in for courses have a very good time, yet they do not always get the instruction which they need. Then again, the horse question is a very important one, and I think probably the best way of dealing with it would be to deal with it through officers commanding regiments. But the little I know about the Yeomanry has made me sure of one thing, and that is, that the circumstances of every regiment differ, and you cannot be certain that what will apply in one district will also apply in another. I believe, in point of fact, that there is no lack of horses in the country as a whole, but it is a fact that the farther you go in the parts south of the Severn and west of Yeovil the more difficulty there is in finding horses. And it is possible that in the case of regiments in the Home District, who hire something like 400 horses, that the Remount Department might be able to make as good arrangements as commanding officers do, because they can go to big dealers. But in districts such as that with which I am acquainted, where what one may call the horse population is a large one, commanding officers would be able to make arrangements by which horses would be forthcoming on mobilisation. It is unfortunately too true that a Yeoman would be able—and would be tempted if there was a threat of war— to sell his horse before mobilisation, and turn out for mobilisation on his own feet only, expecting somebody else to find a horse for him. And there are difficulties about registering horses in the case of people who only own one or two. A man who has got a young horse is very unlikely to register it, because if he sees a chance of selling it he will desire to be in a position to do so. It is easy enough to register horses if you go to a big dealer, or to a 'bus company, and register two-thirds of their horses, for you will always find at least that number in the stables fit for your use, even if you do not find the identical animals which you registered a short time previously. But with people who own only one or two horses it is a different matter. Then there is the other difficulty: that you may register a horse for 10 years, and if the man disappoints you at the last moment, you have no remedy, and no means of recovering your money or the horse; but if you let the registration fees accumulate for say 10 years at compound interest, you will accumulate a sum sufficient to enable you to give 10 per cent. to 25 per cent. over the market price for an animal on mobilisation, and this procedure may be as effective in bringing horses into your hands as registration. But, on the whole, where the circumstances and the district justify it, I agree in thinking that commanding officers would be able to make arrangements as to horses which would make their regiment efficient when mobilisation came about; and it might relieve the central authority of a great deal of trouble at times of great pressure. I agree as to the desirability of a Reserve, especially people like shoeing-smiths and signallers. There is a certain amount of raw material for ordinary troopers which you can get at short notice, and a certain number of men who had left within the last year or two might be expected to rejoin; but it would be most desirable, in the interests of efficiency, to have a Reserve which would at any rate cover 25 per cent. extra of

shoeing-smiths, and the same number of signallers. But Reserve signallers would be required to meet for instruction and practice from time to time. I must say I do not agree with the lecturer about saddlery and mobilisation stores. He spoke of saddlery under the present system as being unfit for use when most required. After all, the Yeoman does not use his saddle more than three weeks in a year, and it must be very badly looked after if a saddle which is only used for that short time every year will not last for many years. It all depends, as far as my experience goes, on the extent to which the squadron officers and permanent staff look after their saddlery. If they pay attention to it, and the saddlery is put into store and looked after when it is not being used at permanent duty, there is no reason why it should not be kept efficient for years. Then again, with regard to mobilisation stores, they can be got, or a good many of them, when required, in the neighbourhood. It does not signify for active service whether your axes and spades are of the sealed pattern or not, and a great many articles of that description can be got through the men themselves, or at any rate from the towns where the headquarters of the squadrons are situated. There are other stores which are apt to deteriorate if put away, but I think the suggestion made a good one for certain articles; but the number of them, after all, is not very large, and I think there are more pressing needs in connection with the Force than the one I have referred to. The question of training is, of course, a most important one, and it is of great advantage when a regiment does get the opportunity of a little combined tactics with other regiments and with guns. We have been lucky enough in Devonshire in the last year or two, thanks to Sir Evelyn Wood, to have had Batteries of Artillery sent down for a week or two at the same time that the North Devon Yeomanry has been in camp. I think it will be worth the consideration of the authorities whether they would not, once in 3 or 4 years, suspend the recruiting of a regiment, and send it, composed only of "old soldiers," to train in conjunction with other units and other arms. We are in a different position now compared with what we used to be. Formerly men could send in their kits at a fortnight's notice, and the number of recruits which would be available to take their place was always a matter of uncertainty. But now men have to enlist for a minimum of 3 years, in that way you are able to know nearly where you are; there is not the uncertainty as to strength that there used to be, and there is no difficulty in filling up vacancies when they occur, I am glad to say. So, although the regiment might not turn out more than 400 strong, if no recruits were present, yet I think it is an experiment which might be worth trying. For, of course, a good deal of the time in camp now is taken up in instilling the elements of camp duty and discipline into the men who have never been under canvas before, and if that were done another year, or on some other occasion, the instruction of the "old soldiers" might take a more advanced form, and there would not be the same risk as now in trying to run before you can walk.

Colonel the Hon. H. L. W. Lawson (Buckinghamshire Imperial Yeomanry):—Every member of the Yeomanry Force here, Sir, must be very much indebted to Colonel Le Roy-Lewis for the able and interesting paper which he has read to us. We were also much indebted for his constant and intelligent sympathy while he was in the War Office acting on our behalf. I do not know whether he has ever had the recognition to which he is entitled for that. So far as the general position of the Yeomanry goes, I suppose we are, on the whole, the most fortunate of the Auxiliary

Forces, and we may say that the sum total of money paid by the country is fairly satisfactory from our point of view. But what we have had to complain of since the modernisation of the Yeomanry has been the uncertainty and variation, almost from week to week, of the conditions under which we serve. I do not think anybody will need to follow the exhaustive survey of the ancient history of the Yeomanry, because those who can go back 20 years will know that up to the time of the war, except that it was a nucleus of fighting material, the Yeomanry were more or less of a mounted mob, or at any rate, up to within a short time of the war. The modernisation began with the war, and we must date the conditions with which we are dealing from the war. That being so, it seems a great pity that a variation of establishment should have occurred in the two years, 1902 and 1904, which caused regiments like my own and others to stop recruiting altogether for that period, and, therefore, that there was to that extent a loss to the country of material or man-power which was available in the country during that year or some part of it. I do not know that it checked the Yeomanry spirit, but it was not good for Yeomanry generally. Besides that, it created some difference in the conditions under which men are enlisted. I think, on the whole, that will have a good effect. We are told that officers commanding regiments should go in for numbers pure and simple, subject to a certain standard, but mainly to get as many men as we could to ride and shoot. But since the reduction of the establishment, most regiments have had opportunities for squadron enrolment, and have been able to raise the standard. I think we are bound, considering the money which is given to us, to see that the country gets its money's worth in respect to men and horses. I confess with regard to men that I do not think the medical examination has been sufficiently stringent in some cases, and I hope that will be raised. In fact I do not know whether the lecturer, in his statement of the Imperial Yeomanry during the Boer War, included those who were rejected by the medical examination. If not, that would increase the number of those who were willing to go on service in that war. I hope the numbers so discarded will be a diminishing one as time goes on; but I think we should be able to raise the medical standard. I have tried to enforce that point on all medical officers examining recruits for Yeomanry. With regard to horses, too, I am not at all certain that the Government is getting its money's worth now; and especially is that so with regard to those metropolitan regiments which take great drafts of horses, which go the round of the whole lot so far as their terms of training allow, so that one has seen horses used in such a condition that one would be sorry to see the standard reduced to that in active service. The whole question of horsing for the Yeomanry requires further consideration. When the lecturer pointed out the difficulties of mobilisation now, of course he hit upon a very patent blot in the system, but one which we are told we can forget because, as he says, the Remount Department undertakes to provide Yeomanry embodied with horses. I share his doubts as to their capacity for so doing, and when I remember there is no such thing as a remount farm, except that for remounts for officers' chargers at Melton Mowbray, and one at another place, I cannot help thinking that the difficulties in the Boer War were greater than the authorities would allow. But I think the conditions are such as can be accepted for active service; they are very much below any standard which could be fixed. I do not attach so much importance to the difference fixed between those owned by the men themselves or their relatives and those which are hired, because when

their own horses are not brought out often for training (and if we are to consider these horses as required for active service) I think undoubtedly that the standard should be raised, and I am inclined to think that the Government might take a liberal view, provided the standard of horsing of the Yeomanry were increased and the conditions were made more favourable for active service in case of mobilisation. That is with regard to the country's bargain with us. So far as we are concerned, upon our side we have to complain as a body at the present time that we have no Yeomanry staff, no satisfactory system of Yeomanry inspection, and we are quite ignorant of our functions and of our places in case of mobilisation. However, I understand these things are now under consideration at the War Office. Lord Lovat has taken prominent steps very much in the interests of the Yeomanry with regard to that, and I understand these things are necessarily deferred until the War Office has decided what its mobilisation plans are, and what part we are to take in them. With regard to the staff arrangements, it is said that efforts will be made to provide for a Yeomanry staff in connection with the inspection of the Yeomanry. I believe there are inspecting officers to be appointed in five divisions, and it is understood that these inspecting officers, who I believe are to be Cavalry officers, will be looked upon as brigadiers in case of mobilisation, and that they will command, or are intended to command, the brigades that they inspect from year to year. If that is so, I think it is a fairly satisfactory arrangement, and we must hope that it will be carried out in practice, and that of course the staff will be adequately made up in other particulars. At present, of course, it does not exist, and therefore it is all a clean sheet. I do not think, on the whole, that the Yeomanry can be expected to furnish staff officers or the inspecting officers, but we have enough to do with our own regiments, and the only fear is that we shall be forced to part with more than we want to. The more efficient will be taken for staff purposes, when we should require them in our own regiments for our own purposes. The less we say about the Yeomanry officers being required outside, the better. We want to increase our regimental strength. With regard to the stores on mobilisation, several regiments have already done as suggested: pay a commission or lien to certain dealers in their own neighbourhood, so that they have a lien on stores on mobilisation; but I hope that without further expense being put upon us we may get a guarantee that we shall be able to draw them, and that the Quartermaster-General will hold himself responsible in respect to stores for our purposes in mobilisation. It is absolutely necessary that they should be provided. They say some are held for our use, and I hope the tale will be completed. Now to pass to another point raised with regard to the training of the regiments. Of course it is most desirable that we should be able to mix with other arms, but the difficulty is a very great one in the case of many counties, such as that with which I am connected. There is no great space of ground available for the purpose, and of course if the Yeomanry regiments are trained outside their counties you will get difficulties with regard to the class of men whom you will be able to reckon on in the ranks; that is to say, the small master or farmer, to whom the training far away from his employment is always a difficulty. It prevents him paying the occasional visit which enables him to carry on his business without dislocation during his encampment. That is a very great difficulty, which, in my own case, for example, glad as I should be to see training on a larger scale, I do not for the time being see the solution of. Of course, if you are drawing in the Militia class

of men it is easy enough; but directly you draw a higher class—and after all it is only the higher class which justifies the present pay to the Yeomanry, the difficulties are considerable, and in some cases, I fear, insurmountable. Anything which could be done on the lines on which Sir Evelyn Wood seems to have acted would be very good; but I have never known a general officer commanding elsewhere ready to help us in that matter. With regard to the training of officers, emphatically I believe that there should be another and shorter term for senior officers, because at present there is almost a universal disinclination on their part to go for a month, and for the first fortnight or three weeks of that to be doing the most elementary kind of work in company with subalterns who have never seen a camp or had anything to do with military arrangements before. This is a very favourable time for pressing on questions which we consider important, because the whole system is in a state of flux, and therefore, although we cannot expect to get more money—we cannot expect to see our grant increased—we may, I hope, be able to obtain some changes in organisation, several of which the lecturer has indicated. The difficulty of course with regard to the very important suggestion made as to the Yeomanry Reserves is, that that involves a further grant, and at the present moment I think there is very faint hope of our getting it. It is most desirable, I agree, but whether we shall get it outside the limits of our present grant I doubt; but I am certain it is advisable. If we had to save money by reduction of insufficient and inefficient regiments it might be worth doing, but short of that, I do not see how we are to get it, though no one would welcome it more than I. It is almost essential for real efficiency for our branch of the Service. We must recollect that we are being fairly well treated from that point of view, and therefore it is not very likely that if the Auxiliary Force receives larger grants that we shall be the recipients. These discussions, Sir, do very much good, and we all highly value the trouble the lecturer has taken in preparing the paper which he has read to us this afternoon.

Lieut.-Colonel JAMES TOMKINSON, M.P. (Earl of Chester's Imperial Yeomanry) :—Sir, I feel somewhat diffident in taking part in the discussion, and would have preferred to have heard more from Yeomanry officers who served their country in active service in the late war. I can only claim to have been a civilian soldier for nearly 40 years, and during that time, naturally, I have seen great changes in the Force. When I joined the Cheshire Yeomanry it was 600 strong, composed almost entirely of farmers of an average age, I suppose, of 40 years at least, many of them mounted on very heavy horses, and almost all serving more or less compulsorily under the Feudal system on the great estates, one of the conditions of their tenure on their farms being obligatory service. Since then great changes have taken place, and, I admit, entirely in the right direction. It was only on the outbreak of the Boer War that the system finally broke down, and a great change was effected. I think it was by the appropriate and liberal grant of £5 to every man bringing a good horse. There was no difficulty in obtaining men. I never made it a condition of compulsory service on my own estates; but the difficulty I had was to keep up the horses. I used to hire to some extent, and I could get horses for £2. This £5 a horse has removed that difficulty, and, to speak on that subject first, I agree with my friend behind me in thinking that the Government hardly get good value for that £5, and I think that is because of an insufficiently strict censorship of the horses sent up by the commanding officers. If I have the good fortune to succeed to the

command of the regiment next year, I shall try to make that a stringent obligation: that every horse should be passed by the commanding officer, or by someone appointed by him—the adjutant or some other officer—as a thoroughly effective and *bonâ-fide* horse. It seems to me that the payment of £5 has been the occasion for everyone who had a horse he could possibly lend and put into the field for the 15 days, to take advantage of it, and if possible to obtain from the man hiring it the full value of the horse in one or two trainings. That is a subject which should be very carefully looked into, and it should be the duty of every commanding officer to see that the Government, as far as possible, gets an effective class of horse. As I said in the House the other day, although the proportion of existing Yeomen who volunteered for the war was not very large (although the figures given by Colonel Lewis are fairly satisfactory, that is to say 30 per cent.), the class of men in the Yeomanry were a class of men you could least expect to volunteer. You could not expect farmers, fathers of families, with farms to look after, to volunteer for active service abroad. But now with the change, we have in my experience the very class of men that one wants to get—an improved class of men, young men, unmarried and active, and quite able to go, and very much the class who did come forward from outside the Yeomanry in such gratifying numbers, and who formed such a satisfactory force as left our shores for the last war. That is all to the good. I must say something on the terms of service. I confess I do not think we can have a Yeomanry with the obligation of going on foreign service; but we ought to have a large force for home defence. I do not think the country will ever consent to place its defence in the hands of one arm of the Service; and it would not be wise to put one's whole faith in the Navy, or to put all our eggs into one basket and say: If we have a sufficiently powerful fleet we do not want a force for home defence. On the contrary, I think the concluding words are true, that our Volunteer Forces should be encouraged as much as possible, as the lecturer said. We should have an efficient force of Volunteers and Yeomanry for home defence; but I believe the Yeomanry, recruited as they are, drawn from the class from which they are drawn at present, will, when required, furnish a large proportion of their numbers for foreign service, as last time. The same applies to the Militia, and speaking as the son of an old Peninsular and Waterloo officer as I am, it is well known and remembered that our splendid Army all through the Peninsula did depend chiefly on the Militia the whole time, and that was by volunteering. Of course, the Militia were then drawn by ballot, but the supply of men from the Militia to the Line for active service was by volunteering only, and I see no reason for change, and the Militia has given no indication of change in its attitude. I believe the Militia will still furnish large numbers for garrison work or for the field, as they have done in the past, without compulsion. With regard to the shortage of officers, I suppose that is a difficulty. I was talking lately to Colonel Lord Windsor and Colonel Barclay, and they said they had the same difficulty; and I am inclined to agree that the conditions imposed, or sought to be imposed, upon young officers are too onerous and unnecessary. Colonel Barclay said: "You have two classes of young men ready to go into the Yeomanry—one a rich class, who have not had much to do as a rule, and they find it too irksome, and refuse to go for a month to Salisbury Plain and for a month's musketry instruction besides; the other class consists of men who are too busy, although but for that they would willingly go through with it. Therefore in some regiments you find a distinct

difficulty in getting the required number of officers." I do not think it is a very great shortage; but it is a matter which requires attention. I think certainly that musketry instruction should not be insisted upon. You do not need for every officer to know the red book, and to know musketry instruction off by heart. The Adjutant, one or two officers perhaps, and the sergeant-instructor are sufficient to give the necessary tuition to the men. I think we want more ranges. In our country all the squadron ranges which the different squadron officers provided have been done away with, and much time and money are wasted in sending the men long distances to Government ranges. In a civilised and populous country it is impossible to get one mile to the target, two miles behind the target, and one mile on each side. If a man can shoot up to 600 yards he is well trained enough, and each regiment can probably find a suitable range of that distance conveniently situated. With regard to Inspecting Officers, I confess I have not had the experience which Colonel Lawson has. From Chester, which is our headquarters centre, we have the same officer to inspect us every year, Colonel Courtney, and the General comes out and they are able to inspect the other regiments in the district. They do not go out at the same time, and I thought we had got rid of the old system of casual officers from the nearest regiment coming to inspect them. The inspection of both men and horses of course ought to be most thoroughly done, and, as far as my own experience goes, it is well done. I would like to associate myself very warmly with the tribute of gratitude and acknowledgment which has been expressed to the lecturer for the time and trouble which he has bestowed upon the paper, and for the extremely interesting lecture which he has given us.

Colonel L. Rolleston, D.S.O. (South Notts Hussars, Imperial Yeomanry):—I am afraid I am more used to commanding Yeomanry than to making speeches about them, and although I am aware that a great many excellent suggestions have been made for the improvement of the Forces, both in the lecture we have heard to-day and also in other quarters, I only rise to-day because there are several things which appear to me among the most essential, which have not been mentioned at all. With regard to most changes, I am strongly with the gentleman who spoke before, who said that, considering the awful things which are happening to nearly every other branch of the Service, not excluding the Cavalry, I think we shall do well to sit tight and court as few changes as possible, and occupy our time in trying to improve our own regiments. But there are one or two things which I will shortly, at this late period, mention to you, which in my own case at any rate, and in that of some other commanding officers I know, would help us. One is with regard to the length of service. We are obliged to recruit men now for 3 years only, and renew them from year to year. In many parts of the country I believe this is an excellent arrangement. In my own part of the country, in the class of men from whom the Yeomanry come, the people are very slow in thought; it takes them a long time to make up their minds to belong to the Yeomanry at all, but when once they have belonged to it, it takes them a long time to make up their minds to retire from it. And what I would ask is simply this: that we should be allowed the option of recruiting a man for 5 or 6 years instead of 3, if the man so wishes. That would, I am sure, help us greatly. In my part of the country it takes many years to convert one of these slow-thinking gentlemen, and he is not in the regiment half as long as it has taken him to make up his mind to join. The result of that is that we have a decided

difficulty in keeping our numbers up, without enlisting an undue proportion of recruits. I know it is not the case in all parts of the country; but if it can be so arranged that it would be optional to recruit men for 5 years or 6 years, it would be a very great help to many of us. Another thing which will be considered as less easy of accomplishment because it involves a little increase of money, is for us to have some very slight sum set apart for teaching reconnaissance in the winter time. The greatest stress is laid on detached duties and reconnaissance, but you cannot teach a man to scout properly in the summer time, when a man is unable to ride across the country. If a large sum were asked for from the Government it would be no doubt refused; but if a few hundred pounds were asked for for those purposes, for men who really came out to be taught as scouts in the winter, it would be an enormous advantage to the efficiency of the Force, and the relative cost would be very small. I had an experience in this respect some years ago. I ferreted out in the Regulations that one might go out for exercise at 3s. 6d. per day per man, besides regular training. I therefore got my scouts out, 70 or 80 of them, and gave them two or three days in winter time, and applied for 3s. 6d. per man. There was a terrible fuss, and it was refused, and after spending nearly the whole sum I asked for in railway expenses, the War Office, who do adhere to their own regulations, gave in and paid me the sum; but in the next Army Order which came out there was an order that no one should ever do it again! Therefore we did not get much further in that matter. But if some money could be put down for that in the winter, it would be a great advantage to officers who want to get their regiments efficient in that respect. There is another thing, and that is the recruiting of the men for foreign service. As a practical Yeoman, I am altogether opposed to recruiting men for foreign service. Many a man will not be recruited for foreign service, who will go on foreign service if he is in the corps. I have been thirty years in the Yeomanry now, and have recruited a great number of men. You go to a young gentleman at a farm who is doted on by his mother, and he is perhaps engaged to the young lady at the next farm, and it is a great difficulty to get him to enter the Yeomanry, and if he were liable to foreign service it would, in many such cases, be impossible; but at the next inspection he sees the uniform and smart appearance of the men, and he wants to join them, and you get him. He is trained and becomes a smart, active soldier; he takes his own line with his mother, probably the young lady at the next farm marries somebody else, and when next a war is declared away he goes. I have found this sort of thing in practical work, and if these ideas I have mentioned should be put into practice it would be a great help to us. In conclusion, I would join with the others who have expressed their great admiration of and thanks for Colonel Le Roy-Lewis's excellent lecture.

Colonel H. Le Roy-Lewis, D.S.O., in reply, said:—I am very much obliged to the officers who have made speeches on this subject, for the suggestions which they have made, and especially for finding fault with several points in my lecture. All I can say is I wish they had found fault with more points. Of course this would have had one disadvantage, and that is, I should have detained you in replying to them; but discussion is very good in all these matters. With reference to Lord Ebrington's remarks on the pay of Yeomanry, I must confess I am unrepentant; I stick to what I have said. It is true that more money is spent on the Yeomanry, and also that the Yeoman is now put to less expense than he used to be, by providing him with a horse at the training; but the point

I wish to insist upon is that the personal emoluments of the Yeoman have gone down; 5s. 6d. a day is what he makes at the training. It is true he used to be put to extra expense by billeting, and the 7s. was supposed to cover that, but his personal emoluments are less. In the West of England £5 for the horse more than covers the expense; but Lord Ebrington will remember the Committee on which he and I sat, he as Chairman and I as one of the members, which enquired into this question of expense exhaustively all over the country. We concluded that there were many parts of the country where £5 more than covered the expense, but there were parts of the country—metropolitan areas principally—where £5 does not cover the expense. Taking a general view, I think the £5 about averages the cost for the whole country, therefore that £5 does not, except in favoured districts, find its way into the Yeoman's pocket. With regard to the "charge," I think Lord Ebrington caricatured my idea. I am so glad to see that Colonel Rolleston is here. I said that on active service you never know where you are or what is going to happen to you. Colonel Rolleston and I started from Boshoff, members of a Yeomanry brigade which covered the advance of a large force of infantry and of artillery; we were the only mounted men with that force, and if we charged once I was going to say we charged a hundred times, but that would be an exaggeration. We charged a large number of times, because we were obliged to, and if Lord Ebrington tried to charge and hurt his enemy with a rifle in his hands he would find it a wearisome business. Lord Ebrington thinks our saddlery is good; so I think, too, at present. My point was rather that the Yeomanry colonel's temptation is to save on saddlery; it is the most expensive item he has to deal with. We found in South Africa, unfortunately, that this theory was well borne out. When I took over the command of my regiment in South Africa, I gathered together all the saddles of one of my squadrons, which had belonged to a distinguished home regiment, and I burned them, because they were of no use to anybody. They were old saddles which had done duty for years and years, and had been patched up for active service. Lord Ebrington thinks mobilisation stores would be available when you come to the pinch; but I have my doubts on that subject, because I have had experience on the Yeomanry Committee. I remember at one juncture of our fortunes we could not get slouch hats, and at another time I do not know what sum of money we offered to get saddles. Of course these conditions always occur in times of great stress and emergency. My suggestion was that we should not have the same number of articles earmarked in the hands of tradesmen, but that there should be a constant supply of fresh articles passing through their hands on which interest would be paid for the capital expended by them. Colonel Lawson has objected that there were many uncertainties about the dealings of the War Office with the Yeomanry. I do not want to let anybody into the secrets of the War Office, but I would call your attention to the fact that those uncertainties are not confined to the Yeomanry, and that the reason for this very often proceeds from the inability of certain persons to make up their minds. The Inspecting Officers whom Colonel Lawson has alluded to are, as I said in my paper, provided for in the Estimates for this year—three of them. But there is that ominous foot-note, that no rate of pay has been allotted to them because, the appointments being new, it is not known what their functions are going to be. There you have admirably illustrated the policy of doing something and thinking about it afterwards. Colonel Tomkinson, I think, has touched upon a variety of subjects, with which I

am in complete agreement with him; I am so glad he drew special attention to the numbers who volunteered for active service, because it has been cast in our faces that few Yeomen went to South Africa. I think 30 per cent. is not a bad showing, and that percentage, it must not be forgotten, does not include those who offered themselves but were medically rejected. The numbers of Yeomen who were rejected are not known, but I think if they were, the figure would come up to nearer 50 per cent. than 30 per cent., and, as Colonel Tomkinson said, for a Force purely enlisted for home defence, without any idea of going abroad, that is very creditable. The sweethearts and farms alluded to by Colonel Rolleston play a great part in his imagination, but I do not feel that difficulty about enlisting Yeomen for foreign service, because it must not be forgotten that this foreign service liability will only be enforced in times of the greatest national emergency, and I do not think anybody who calls himself an Englishman would care to resist such a call at such a time. It is true that call will be responded to, as it was in the case of the last Boer War, voluntarily; but, on the other hand, it is impossible to form any military plans or forecasts on a purely voluntary basis. A war may be popular, and there will then be no difficulty in getting men to fight. On the other hand, a war may be equally necessary for our national existence, and yet not so popular. Therefore I think that from the point of view of organisation I should like to know how many chickens I have before they are hatched. There is another consideration which I think Colonel Rolleston and Colonel Tomkinson ought to remember in reference to this matter, viz., that during the debate in the House of Lords on the introduction of the Militia Bill, the Militia colonels were practically unanimous in its favour, and I trust that if the time should come when the same kind of measure is passed for the Yeomanry that we shall find the Yeomanry colonels no less unanimous.

The CHAIRMAN (Major-General Sir A. E. Turner, K.C.B.):—Colonel Le Roy-Lewis commenced his most excellent lecture by questioning the wisdom of drawing public attention to the Yeomanry at the present time. But we can hardly hear too much of that excellent body, whose development has been so very rapid, and which is greatly due to the initiative and energy of Mr. Brodrick. I consider really that the creation of the Imperial Yeomanry will be the brightest memorial of his period of service at the War Office, the termination of which I and a good many others have very great reason to regret. We may gather, perhaps, from analogy that Colonel Le Roy-Lewis is not altogether wrong, for the Militia and the Volunteers have attracted a considerable amount of attention of late, not in all respects to their advantage. The Yeomanry, since the establishment was reduced a year or a little more ago, from 35,000 to 28,000, and regiments from 596 to 476, have enjoyed that Elysian state of being left alone by the War Office, and that is a very rare blessing for any unit or corps of the British Army. The growth of the Militia and Volunteers has been stunted and their vitality sapped of late, owing to the uncertainty of their future, and the threats of reduction and destruction which have been held over their heads. Certain it is that sympathy has been expressed with them by people in high positions; but I am afraid that sympathy is somewhat the same as that extended by the walrus and the carpenter to the oysters, of which not a single one was left. The Yeomanry at the commencement of the war numbered some 13,000 and 224 officers; of these, 2,879 men went to the war, and formed the nucleus of that great force of 1,343 officers and 34,127 men who actually served in

South Africa, and which did not include those who volunteered but were rejected owing to physical disability or other causes. We know that the first batch which went out was excellent, the second was tolerably good, but in the third there were a large number of totally untrained men, who could neither ride nor shoot. The lesson to be drawn is, what a different state of things there would have been if we had anything like universal training in the country. We know we cannot get conscription. Mr. Balfour, in his celebrated Army speech, said that those who advocated conscription in this country do not know what it does and what it is intended to do. It is impossible to hold distant positions across the sea by conscript soldiers, and therefore he considered it unnecessary and impossible for foreign service, which is our great difficulty in the Army, and unnecessary for home service. And he went on to say what we must have is a small, perfectly equipped Regular Army whom we can send to a threatened point without delay at any time; but if the stress of war continues, especially if one of the great military nations of Europe is brought against us, we must depend not upon the Regular Army for the time being, but on the readiness of the population of this country and on the free Colonies to aid us in repelling the aggressor. What does that mean? It surely means that the people in this country and in the Colonies should be trained to arms. In this country every young man should be induced if possible to go into the Militia, the Yeomanry, or the Volunteers; but what do we see? The Secretary of State for War considers that the National Forces—I may call them National or Citizen Forces—are too great, and he wants to reduce them. He says the Volunteers are not necessary for home service, and that it is a delusion to regard them as being able to furnish a Reserve to the Army in the field. Look at the Reserve which was furnished by our Auxiliary Forces: 100,000 from the Yeomanry, Militia, and Volunteers, and something like the same from the Colonies. And therefore the lesson to be drawn is this, that it is the duty of the Government to induce every sound man to join one branch of the Auxiliary Forces. With regard to what the author of the paper said about an Adjutant to two regiments, there was never a better step taken than cancelling that order and giving each regiment one. It was a piece of economical juggling in order to save a little money at the sacrifice of efficiency, which almost beats anything I know which has been done even in Pall Mall. With regard to the shortage of officers, that is very serious, and it is most disappointing to hear the Secretary of State making continual remarks about the shortage of officers, but devising no plan and putting forward no scheme to induce officers to come forward. I do not think it would be difficult to obtain officers if more consideration were paid to the necessity of their carrying out their avocations in private life; and if the training and administration of the Auxiliary Forces were left to a separate department of the War Office, which had nothing to do with any other department, except in the way in which one branch of the Army must dovetail into the others, and which had unrestricted power to deal with the Auxiliary Forces, whose conditions are in many respects peculiar and do not apply to the Regular Army. With regard to the Reserve, that is a most important thing, and nothing pleased me more when I was in the War Office than the creation of a Militia Reserve. But what has been the fate of it? £150,000 was allotted to it the first year, £50,000 the next year, and now it is reduced to £40,000 this year. How can we prosper when all things are changed in that way? It was acknowledged by everybody who knew that the Militia Reserve was a most excellent thing,

and in 3 years the same gradually dwindles down, and perhaps in a year more it will be reduced to vanishing point. What applies to the Militia applies to the Yeomanry also, and the creation of a Reserve of Yeomanry as proposed to-day by Colonel Le Roy-Lewis would be a most important and excellent measure. With regard to the liability for foreign service, I agree entirely with what Lord Raglan said with regard to the Militia the other day, and Colonel Rolleston has said to-day. There are great advantages no doubt that we should have both Yeomanry and Militia with a liability to general service when the country is in serious danger; but we should get those men whether they are under that liability or not, and we shall lose many officers and men if they were always faced with a liability for foreign service. Mothers, fathers, and sweethearts will be strong obstacles, and will bar their serving. When first the proposal of foreign service for Militia was introduced I was entirely in favour of it; but after what has been said on the subject by Lord Wemyss and others, I have thought more about the matter, and believe that we may lose the services of many officers and men, who would be available for home service but who cannot go abroad owing to their circumstances of life. There is nothing now left for me except to offer our sincere thanks to the speakers who have favoured us with their remarks, and also to Colonel Le Roy-Lewis for his most excellent and instructive and valuable paper, the report of which will be a most valuable record—a most valuable statistical record—not only to those who are interested in the Yeomanry, but also those who study the question of our Army and have the good of the Empire at heart.

Colonel Sir WILLIAM BAILLIE-HAMILTON, K.C.M.G., C.B. (Lothians and Berwickshire Imperial Yeomanry):—Before this meeting breaks up, I think that it will be only right to express our sense of the obligation we are under to the distinguished General Officer who has been good enough to preside to-day. I have been a Yeomanry officer 30 years, and I have had some practical experience of the War Office authorities and their ways of dealing with the Yeomanry, some of which have been to the advantage of the Force, and others very much the reverse. I can say without hesitation that the Yeomanry never had a better friend than General Sir Alfred Turner during the time he was Inspector-General, and we were all heartily sorry when he gave it up. As a member of the Council of the Institution—I believe I am the only member of the Council present to-day—I beg to move a hearty vote of thanks to him.

THE FORMATION OF A ROYAL ARMY RESERVE STAFF CORPS OF OFFICERS FOR THE BRITISH AND INDIAN ARMIES.

By Major W. KIRKPATRICK, D.S.O. (late Indian Army).

THE vital importance to a modern civilised Army, of a large and well-trained Reserve of Officers, from which the War Establishment of officers may be maintained at efficient strength, has been emphasised by the lessons of the Boer War, and by experience gained from the present campaign in Manchuria.

So heavy are the casualties, among the commissioned ranks, caused by wounds and disease, during a protracted war, that it may be necessary to replace, at a low estimate, 50 per cent. of the officers in the Field Army.

Now, *the officer cannot be improvised*, as one of our highest military authorities has recently said. In the Boer War, we were forced to grant commissions to gentlemen who had had little or no military training. The result was not an unqualified success, and most of the young officers had to undergo a special course of garrison instruction at the conclusion of the war, in order to educate them up to the standard of officers in the Regular Army, and to enable them to perform their duties efficiently.

The difficulties at present experienced in the Japanese and Russian Armies, in replacing the heavy war losses in the commissioned ranks of their Armies, are so well known as to render further comment on the subject unnecessary. The Russians, however, are the greater sufferers in this respect, as they do not possess in their non-commissioned officers the educated material included among the Japanese rank and file.

The system at present obtaining in the British Army consists, generally speaking, in retaining, as officers for the Army Reserve, gentlemen who have served in the Regular military forces of the Empire. This system provides an inadequate, and, in some respect, an unsuitable Reserve of Officers. What we require is a very large Reserve of trained officers of junior rank, viz., men of the grade of lieutenant and captain.

A sufficient and suitable Reserve of field officers can be obtained under the present system, from officers of field rank retired, and retiring, from the Regular Army.

The question to be solved is, how best to obtain, and keep in training ready for war, this large Reserve of the junior commissioned ranks?

The qualifications to be desired in an Army Reserve Officer are:—1. That they should be the equals in birth, social and educational standing, of officers of the Regular Army; 2. That they should be sufficiently trained in a military sense, to enable them to assume at once, in time of need, the duties and responsibilities of company and squadron officers in the Regular Forces of the Empire.

We possess in the United Kingdom raw material in abundance; what we have to do is to offer sufficient inducement to young gentlemen

of the necessary qualifications to serve for some years in an Army Reserve Staff Corps, and to train them thoroughly during those years. The provision of a Royal Naval Reserve is an accomplished fact, the provision of an efficient Royal Army Reserve of Officers is as vitally important as that of a Naval Reserve, and offers no greater difficulties. The object of this paper is to propose the formation of a Royal Army Reserve Staff Corps of Officers in the United Kingdom and in India. By the title Royal Army Reserve Staff Corps we mean to suggest an organised body of officers, liable for service in any part of the world, ready trained and immediately available in time of national emergency. The scheme might be afterwards extended to the Colonies, if it proves a success in Great Britain and India.

We will first discuss the details of a scheme to provide the British Army with such a Reserve of Officers, and thereafter suggest the manner in which the Native Indian Army might be similarly supplied.

Great Britain.

It is proposed that, in or near the larger cities of Great Britain, corps of Royal Army Reserve Officers should be formed.

These local corps must be sufficiently strong to allow for the establishment at each Corps Centre of a weak battalion of infantry (say four companies, fifty strong each), and of a half squadron of Cavalry (say two troops, or forty-eight troopers in all). Such an establishment would render the corps self-supporting and independent, as far as ordinary drill and instruction went, of the units of the Regular and Auxiliary Forces quartered in the vicinity, though the existence of these latter bodies would be fully utilised to enable the members of the Royal Army Reserve Staff Corps to avail themselves of opportunities of watching tactical exercises, and manœuvres carried out on a larger scale than could be executed by their own little brigade. Each local Royal Army Reserve Staff Corps would consist of 200 Royal Army Reserve captains, lieutenants, and cadets, of Infantry, and of 48 Royal Army Reserve captains, lieutenants, and cadets, of Cavalry. At parades and manœuvres, four of these captains would command the companies of the battalion, and eight of the lieutenants would act as company-subalterns, *i.e.*, as half-company commanders; the remainder forming the rank and file, and section commanders, of the battalion.

Each captain in the corps would take his regular turn of acting as company commander, and each lieutenant would act as half-company commander as his turn came round. The same system would hold good in the half-squadron, every officer would be given frequent opportunities, by roster, of acting in his rank. The cadets would invariably be in the ranks, except at certain instructional parades, when they were working up for their examinations for promotion to lieutenant.

The instructional staff of each local corps would consist of a commandant, second-in-command, two adjutants, a sergeant-major, a quartermaster-sergeant, and six sergeant-instructors (or colour-sergeants). These officers, and warrant and non-commissioned officers would be drawn from the Regular Army, and would be selected for their intelligence, military education, and power of imparting instruction. The four officer-instructors should be drawn from different arms of the Service, *e.g.*, if the commandant of the corps happened to be

a cavalry man, it would be advisable to select an infantry officer as second-in-command, and *vice versâ*. The Royal Artillery and Royal Engineers should each have a representative officer on the instructional staff, as they could deliver valuable instruction on the special duties of their own branch of the Service.

The instructional staff of all grades should be seconded from their own Regular corps for a period of not more than four years, and should then revert to duty with the Regular Forces; they would be replaced by others fresh from the mill of the Regular Army.

The Royal Army Reserve officers and cadets would be recruited from the gentry, and from the younger members of the professional and mercantile class.[1] They would be required to attend lectures and tactical demonstrations twice a week, in the evening, after business hours, and to parade on one afternoon in the week, preferably on Saturdays. (Probably three Saturday afternoons and one other afternoon, or evening, parades, in the month, would suit most men best.)

They would live at their private residences in or near the Local Corps Centre, and would be granted leave of absence from evening lectures and weekly afternoon parades for a period of not more than two months in any one year. It would be discretional with commandants of local corps to grant any officer or cadet leave of absence from one or more lectures and tactical demonstrations during the week, when stress of business or professional duty rendered individual attendance difficult, or detrimental to his civil calling.

It would be advisable to have one mess guest night once a week, at which all officers should, if possible, dine in uniform at mess; this would conduce to *camaraderie* and enable the Reserve officers and cadets to make each other's acquaintance.

With the exception of this one weekly mess dinner (which might be arranged to coincide with one of the weekly lecture evenings), of the other evening lecture (or tactical demonstration), and of the weekly afternoon parade (or cross-country manœuvring), the officers of the Royal Army Reserve Staff Corps would be free to live and dispose of their time how and where they pleased. Candidates for Royal Army Reserve Commissions would join the Corps on probation as gentlemen cadets. They would be elected as vacancies in the corps occurred by a ballot of all the numbers, "blackballs" to count in

[1] There are a large number of such young men unable, or unwilling, to serve as officers in the Volunteer and Militia Forces, under the present conditions of service, and it is hoped that under the scheme now proposed, an outlet for their latent patriotic and martial instincts will be provided. We believe that the formation of such a Reserve Corps of Officers would attract men who otherwise could not be induced to render military service in the Auxiliary Forces of the Empire. We cannot count on the officers of our Volunteer and Militia battalions to replace casualties in war time among the officers of our over-sea Regular Army. To denude our Auxiliary Forces of their best and most efficiently trained officers in a time of emergency would spell ruin to the Scheme of National Defence, in which those Forces play such an essential part. A man cannot at one and the same time, be a Volunteer (or Militia) officer as well as a Regular Army Reserve officer. He can only be in one place at any one time, and to try to make him play a double *rôle* is an absurdity on the face of it, though it may serve to throw dust in the eyes of a credulous public.

the same way as they do in the ballot for admission to any social club. All cadets would be officially enrolled from the 1st January annually, and would start their training together from that date. After a course of recruit drill and instruction across-country, and after one year of service as a cadet, the candidate would receive a Regular Army Commission as a lieutenant in the Royal Army Reserve Staff Corps, provided he had passed a satisfactory examination for promotion to lieutenant, and that he was recommended for a Commission by the commandant of the Corps.

After five years' service in the rank of lieutenant, promotion to captain would ensue, consequent on the test for promotion to captain being creditably passed.

After serving in the Royal Army Reserve for six years as captain, the officer would be retired, having completed a total of twelve years' service as cadet, lieutenant, and captain; he would receive a step of promotion (to major) *on retirement*. This early retirement is recommended, as it would be inexpedient to introduce Army Reserve officers in time of war into Regular regiments as majors and seconds-in-command; they might, however, be promoted in the field to such appointments (and eventually to command of regiments), if considered fit and tactically qualified, after a certain amount of approved service in the rank of captain in the Regular Army, and when embodied for service with Regular troops.

The above rules for promotion of officers in the Royal Army Reserve must be considered as capable of modification in the case of gentlemen joining the Royal Army Reserve Staff Corps at such an age as would render it inadvisable to retard their promotion to captain for the full period of five years as lieutenant. If specially recommended, men of a proper age and thoroughly qualified might be given their step to captain after 3 or 4 years' service in the rank of lieutenant.

In the event of the Royal Army Reserve of Officers being called out, either wholly or in partial mobilisation, for service with Regular troops, the Royal Army Reserve officers would be posted to fill vacancies, and replace casualties in the establishment of officers of the Regular Army; when thus employed, they would receive the full pay and allowances of their rank. As far as possible, Royal Army Reserve officers would be posted to regiments with which they expressed a desire to serve, and, if practicable, they would be posted to regiments territorially connected with their Local Corps Centre. At the conclusion of the campaign or mobilisation, Royal Army Reserve officers, well reported on, would be given the option of serving on in the Regular Army, being granted the full pay of their rank and receiving promotion on the same footing as their Regular Army comrades. They would be entitled, on completion of their service as Regular Army officers, to pension, calculated (on a sliding scale) according to the combined length of their "Reserve" and "Colour" Service.

Royal Army Reserve Local Corps headquarters would have to be instituted and constructed at the expense of the State, and would comprise a lecture and drill hall, shed and parade yard, a military library and gymnasium, and arrangements would have to be made to ensure the use of ground for manœuvres. This ground should, if possible, be of a broken undulating character, and afford a good tactical *terrain*.

A small entrance donation, and a small annual subscription, from members of the Corps, would enable a smoking and reading room, a

dining room, and a billiard room, to be included under the same roof as the Military Institute; the funds requisite for the construction of these public rooms might be advanced in the first instance by Government, at a low rate of interest, and gradually repaid by the Corps from the funds derived from entrance donations and annual subscriptions of members. An attractive social club and place of meeting would thus be provided, partly at Government, and partly at private expense.

The course of drill and instruction would be systematic and progressive throughout the year, and would consist, as above suggested, of 2 or 3 weekly lectures or tactical demonstrations, carried out at night, after business hours, at such time as might prove most convenient and pleasant to the bulk of the members. These lectures, etc., would work up from instruction in drill and elementary tactics, to the broad principles of Strategy, of Fortification, of Field Engineering, of Topography, and of military-map reading; tactical schemes worked out with the aid of large maps, models, and black-boards, would form part of the course. Limelight illustrations, demonstrating the science and tactics of modern war, and lectures on military history, and on campaigns, in which the British Army particularly had been engaged, would be included in the curriculum. Classes for practical instruction in Scouting and Reconnaissance, in rapid military sketching, and reports on roads, rivers, railways, positions, etc., would be organised and carried out throughout the year by the instructional staff, so as to admit of members availing themselves of instruction in these subjects on any day, or during any week, in which they happened to have leisure to devote to the acquisition of military knowledge. Certificates of proficiency in these subjects would be granted to officers attending the classes and acquiring a thorough *working* knowledge of them. Officers in possession of such certificates would be given a preference in case of a partial mobilisation of the Royal Army Reserve, or in the event of a call for volunteers for Active Service.

Royal Army Reserve officers should be encouraged to volunteer for Active Service, and to attend manœuvres with the Regular and Auxiliary Forces; and the Regular and Auxiliary Corps, in garrison, directed to afford these officers every facility to attend their parades and manœuvres.

A weekly programme of parades and cross-country manœuvres to be carried out by the different Regular and Auxiliary Corps in garrison would be posted on the notice-board of the Royal Army Reserve Headquarter Club, for the information and assistance of Royal Army Reserve officers desirous of attending such exercises.

On the above roughly sketched lines, a *Corps d'Elite* could be formed, which would, in itself, constitute a club of over 250 members, and which would, from the outset, acquire the social prestige and popularity requisite to make the scheme a success and attract the best class of officer-recruit.

We will briefly recapitulate the inducements which could be held out to young gentlemen to join the Royal Army Reserve Staff Corps:—

1. The Commission granted to lieutenants and captains of the Royal Army Reserve by the King would be a Regular Army Commission, and Royal Army Reserve officers would rank according to the dates of their Army Commissions, with officers of the Regular Army at all times;

2. They would be entitled at all times to assume the title and wear the uniform of their Army rank;
3. They would, *on retirement from the Royal Army Reserve, be given a step of rank* (*i.e., to captain or major* as the case might be), and would be permitted to wear the uniform of their rank after retirement.
4. They would be given the option of permanent employment in the Regular Forces after having performed good service in the field.
5. They would then receive the pay of their rank, and would earn the right of counting service towards pension (on a sliding scale), under the same regulations as govern the pay and pensions of Army officers.
6. They would belong to what would very soon become a *Corps d'Elite*, possessing an exclusive Service Club of excellent social status, and, as members of such a corps and club, they would acquire an individual prestige at present denied to the holder of a Commission in the Auxiliary Forces.
7. The judicious and generous bestowal of Honours and Honorary Distinctions on gentlemen who had done long and meritorious service in the Royal Army Reserve Staff Corps, would go far to popularise the movement, and would cost the State nothing.

As regards the uniform of the Royal Army Reserve Staff Corps; it is suggested that it consist of a smart workman-like field service uniform, and of a smart and comfortable mess dress which could be worn at evening entertainments, etc., at which uniform was being worn by officers of the Regular Army.

The order of dress to be worn at levées should be laid down in Regulations, and the levée dress should be a smart and handsome uniform. The maintenance of Levée Order, however, should be strictly optional, and levée dress should never be ordered to be worn as a Corps "Order of Dress" for the day. The upkeep of such an expensive uniform should not be obligatory, and its use should be restricted to occasions when officers desire to be presented at Court or elsewhere, or attend a levée, or similar function abroad.

India.

In India, the Royal Army Reserve Staff Corps officer must possess, in addition to his other qualifications, a knowledge of the Hindustani language, and an acquaintance with the native character.

In time of war or national danger, Government officials, such as gentlemen in the Indian Civil Service, in the Indian Police and Department of Public Works, etc., could not be spared from their own professional and technical duties, and cannot consequently be counted on as available material for the Reserve Staff Corps. We must rely, therefore, almost exclusively on the non-official class. In most of the large banking and mercantile firms in India, there are a large number of young men of birth and education who have not attained to positions of much responsibility in the large houses to which they belong. They offer excellent raw material from which to shape a Reserve Staff Corps of officers for the Native Army of India. Many such men are now serving as officers and Volunteer private soldiers in the Corps of Light Horse, now existing in the larger cities

of India. Most of them, whether members of the Volunteer Light Horse or not, can ride well, and a large proportion of them are good shots, owing to the opportunities afforded by the country for large and small game shooting, for pigsticking, and other kindred sports, which give men the best of practical training for hand and eye and for acquiring an "eye for country."

No difficulty would be experienced in raising Corps of Royal Army Reserve officers in cities where large European communities exist, *provided always that the heads of the large firms could be induced to allow their assistants, or at least fifty per cent. of them, to enrol themselves as Army Reserve officers.* And this is the key to the whole difficulty as far as India and its Reserve of Officers is concerned.

What form this inducement should take is a matter for the consideration of the Indian Government. Remission in part of income tax; preference in Government contracts; an appeal to patriotism, and to the interest of the mercantile community in supporting an efficient Army whereby the tendency to financial panic may be lessened; and a liberal and judicious bestowal of honours and distinctions on the heads of large firms supporting the movement, are suggested.

It is estimated that Calcutta could furnish a Royal Army Reserve Staff Corps 300 strong, and that Bombay, Madras, and other large cities could raise local corps in proportion to the strength of their European communities. A Royal Indian Army Reserve Staff Corps, 1,000 strong, would go far to supply our present *urgent* need and is obtainable at comparatively small expense to Government.

For the Indian Cavalry, a very efficient and desirable Reserve of Officers could be easily formed from gentlemen serving in such corps as the Behar, Assam, and Surma Valley Light Horse, and I am assured by men in a position to speak with authority that the scheme now suggested would find favour among the junior men and would be assisted by the senior men, whose sanction would be essential to the success of the proposed Indian Cavalry Reserve of Officers. The gentlemen above referred to are most of them planters and are hard riders and good shots, and should make quite first-class light cavalry officers, after a year or two of special training.

But what *is* essential, both at home and in India, is, that the excellent raw material we possess should be trained both practically and theoretically as an officer, and not wasted as a private soldier in an Auxiliary Corps, or allowed to remain unutilised for want of a suitable *métier* and from lack of opportunity and facilities for training. Their education and intelligence are not fully utilised if they are kept in the ranks, *and it is infinitely easier to improvise a private soldier than an officer* in time of national need.

Owing to their education and intelligence, much of the instruction of a Royal Army Reserve Staff Corps officer could be imparted by means of lectures and demonstrations, with the aid of the black-board, models, military maps and war-games, and this instruction can be imparted during the evening after business hours. Many a useful man, who cannot find time during the day to attend parades, could and would spare an hour or two to attend evening lectures and demonstrations in the Corps drill shed. If the Corps Headquarters had its dining and billiard and reading rooms, an evening could be pleasantly spent there, part of which could be given up to the lectures and instructional exercises.

The thing is worth a trial, considering the *absolutely vital necessity* for the formation of a cheap and efficient Reserve to supply gaps caused by casualties in time of war among the junior ranks of the officers of our Regular Forces. Experimental Corps of Army Reserve Officers might be started in London, Edinburgh and Dublin, and in Calcutta, Madras and Bombay, in India, and the system extended to other large centres should the scheme turn out a success after a couple of years' trial at, or near, the above-mentioned centres.

It is impossible to form an efficient Reserve Corps of Officers on the above lines for the Royal Artillery, but it is believed that a small, but useful, Reserve of Officers for the Royal Engineers could be formed in this country in somewhat similar form to that already suggested for the infantry and cavalry of the Army. The Royal Engineer Reserve of Officers might be amalgamated with the above suggested Royal Army Reserve Staff Corps of Infantry and Cavalry Officers.

The matter is urgent, the need is pressing, and we believe that the scheme, crudely and broadly suggested in the above paragraphs, is perfectly feasible. It is at least worth a trial. It has two great recommendations, viz., economy and efficiency. It should be less difficult to establish an efficient Royal Army Reserve than it has been to form a Royal Naval Reserve of officers, and we have succeeded in the case of the latter.

A few figures are given below to prove the justice of our contention that the present Army Reserve of Officers falls lamentably and alarmingly short of our actual war requirements. In examining these figures, it should be borne in mind:—

1. That it is not proposed to find a Reserve of Officers to replace casualties among the field officers, viz., among the majors and lieut.-colonels of our Regular Army; the present Reserve of Field Officers being sufficient;
2. That for every major in a regiment, double the number of captains, and quadruple the number of lieutenants are required, to complete the war establishment of our Regular regiments;
3. *That of the total number of captains shown as at present belonging to the Reserve, many are employed with the Auxiliary Forces, and in other duties,* this militates against their availability for employment in the Army Reserve of Officers. A man can serve but one master, and *we cannot count on many of the retired officers now shown as members of the "Army Reserve of Officers."*

The figures are taken from the Official Army List, and are very approximately correct:—

ARMY RESERVE OF OFFICERS.

	Lt.-Cols.	Majors.	Capts.	Lieuts.
Cavalry of the Line and Household Troops	49	135	120	35
Royal Engineers	38	23	10	2
Infantry of the Line, and Brigade of Guards	200	508	543	63

The War Establishment of an infantry battalion is, roughly, 1 lieut.-colonel, 4 majors, 8 captains, and 16 lieutenants and 2nd lieutenants, or about 30 officers in all, of which we should be ready to replace at least 50 per cent. (war casualties) by an equal number of trained and efficient Reserve officers.

THE SÖNDENFJELD CYCLIST COMPANY'S WINTER MANŒUVRES OF 1904.

By Lieutenant BERNDT FESTIN, the Göta Lifgarde Regiment.

Translated by Lieut.-Colonel the Hon. E. NOEL (late Rifle Brigade) from the "Annual, 1904-05, of the Swedish Snow-Shoeing Association."

TWO officers, both of us lieutenants in the Göta Lifgarde,[1] Baron F. Falkenberg and myself, were selected to attend the winter manœuvres of the Söndenfjeld Cyclist Company and the garrison of Christiania in order to study the equipment and clothing of military snow-shoemen, as well as the arrangement of winter bivouacs.

Many of my readers may ask: "What has a cyclist company to do with military snow-shoeing?"

For the benefit of those not acquainted with the Norwegian Army, it may be well to state that in 1899 two cyclist companies were formed—the Nordenfjeld and the Söndenfjeld—consisting wholly of volunteers, organised as light infantry and mounted in summer on bicycles. For the present they are armed with carbines.

The men are picked in their various corps 18 days after the beginning of the "Recruits' School," and must be proficient both in cycling and snow-shoeing. The non-commissioned officers are permanently posted to the company; the company commander and one first lieutenant are appointed, on application, for a fixed period; in addition a medical officer and the necessary number of second lieutenants may be attached for the company's training.

These companies have the same organisation as infantry, and their principal duty is reconnaissance, both independently and in conjunction with cavalry.

To be able to fulfil these important duties at all seasons it is necessary that the *personnel* be as much at home on snow-shoes as on bicycles. For this reason last year the Söndenfjeld Company's "battalion training" was put off to the winter, and it was exercised as a *snow-shoe company.*

Henceforth, therefore, one of the last "battalion trainings" in a period of three years will take place in winter, so that each year-class will attend at least one such training.

It would be superfluous to point out the importance and practical utility, even for battle, of a so organised mobile corps.

On the 9th February we reported ourselves to the Norwegian Defence Department, and repaired next day to Skar, the manœuvre station of the cyclist company.

[1] The 2nd R. Swedish Foot Guards.

Skar, a disused Government powder factory, is prettily situated in Maridal, 18 km. (11¼ miles) N. of Christiania. The officers and men were quartered in the buildings formerly occupied by the factory people. The surrounding country was everything that a snow-shoe company could wish for.

We were welcomed by the amiable and zealous company commander, Captain Carl Halvorsen, and the doctor, Cato Aall. The other officers were First Lieutenant Mork and Second Lieutenants Skavhaugen and Kallevig.

Among the men were several well-known in snow-shoe sport. The snow lay on the ground a metre deep.

When the idea was first started of a winter service on snow-shoes, it seems that many over-rated their skill on these, and there were found in the company men of every degree of proficiency, from the holder of the Holmenkoll medal to some whose skill was very slight, albeit of the latter sort there were but few. The whole company, however, consisted of exceptionally sound and practical men, full of energy and goodwill, who made it a point of honour for themselves and the company to fulfil the new demands now made upon them.

The Christiania men indeed have always been well known for their soldierly qualities, and all that was wanting was a little practice.

Thus, along with the purely military training, snow-shoe drill was carried on with zest and pleasure, and by the end of the first week the company commander was able to undertake a march of the whole company.

Partly owing to the nature of the country and partly to train the men from the outset to keep together in long columns, the march formation was, as a rule, single file. First of all went a "point" of three expert snow-shoemen, one from each platoon, to, in turn, pick up the track, and, according to the company commander's instructions, spy out the most suitable line of march. Then followed the company commander with the three platoons, the platoon commanders at the head of their platoons, and the section commanders in rear of their sections.

In rear of all was a party of 1 non-commissioned officer and 3 men and the "snow-shoe mender." This party had orders in no circumstances whatever to leave anyone behind them. The "mender" was wonderfully skilful in quickly putting together broken snow-shoes, even in the field, and in the beginning he had plenty of work. Experience showed that as a rule it was only the worst "skidders"[1] who broke their snow-shoes, and that breakages grew fewer with practice.

By the end of the manœuvres breakdowns were very rare, and long and difficult marchés were made without any mishap to either snow-shoes or fastenings.

At halts the platoons closed up abreast, and by numbering from front to rear it was ascertained whether all were present. The same method was also adopted on the march, and by this means also short orders were quickly passed.

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[1] The Swedish word for snow-shoe is *skida*, which suggests *skidder* as a simpler term in our own language than "snow-shoe*man*" or "snow-shoer."

Sometimes when the company came to an open hillside suitable for jumping, a short time was spent in practising this. A "drop"[1] was soon built up of brushwood and snow, and the men enjoyed a bit of sport. On these occasions the company commander always led off. As, however, jumping is not a military exercise, this sport was quite optional, and was looked upon as an agreeable diversion.

The greatest difficulty on the march was to prevent over lengthening out. The comparatively long distance that there must be between men on snow-shoes necessitates more attention than when marching on foot. Distance lost can be easily recovered by a little skilful gliding, whereas filing out soon leads to endless straggling. If any man has to stop on the march, he must not remain in the track but move at once to one side, and regain his place in the column as quickly as possible. Important as it is to keep the correct distance, it is equally so not to slide up on to the snow-shoes of the man in front. There is nothing more tiresome to a man on snow-shoes, especially on a long and fatiguing march, than to find his *heels*, if I may so say, being trodden on by the man behind him.

If, going down hill, the pace is so fast that there is danger of running on to the man in front, one must at once get off the track. This applies all the more in case of the man in front falling, upon which one must—on route marches *without any tactical object*—shout out that the track is not clear. Short marches of from 10 to 15 km. ($6\frac{1}{4}$ to $9\frac{1}{2}$ miles) were made with very strict rules as to closing up, pace, and weight to be carried, and at the same time drills were held on varying and difficult ground.

To afford the company practice in taking along with them the sledges submitted for trial (Nansen's Polar Expedition pattern), a march of about 35 km. (22 miles) was undertaken during the second week's training. In order to make the sledge hauling easier, the company marched in double file, with interval corresponding to the width of the sledges. As the tracks were so near together, the men did not go alongside one another, but were arranged chequerwise, so that everyone had room to move freely. In spite of this there was a great tendency to take too great an interval between the two files.

The country was a very difficult one for sledge hauling, and the train took at least an hour per mile[2] longer than the company. When the sledges were fully laden (about 80 kg. = 176·32 lbs.), ten men were required for each sledge; with half loads, four or five men. The transport was always in charge of a non-commissioned officer.

With sledge transport, as a rule, two men hauled on one long rope, whilst a third minded the sledge from behind and steered it, especially going down hill, when it would very easily run on to the men hauling in front. The rest were in reserve. Going up steep hills the men had to take their snow-shoes off and put on the *racquettes*, carried on the sledges, so as to get a firm footing in the snow, which was often more than a metre deep. In very difficult places the loads had to be divided, and sometimes even the men from different sledges had to help one another. The transport men were relieved generally every mile; but nevertheless, in difficult ground the sledge train

[1] A small perpendicular bit in a slope, to serve as a taking-off place in jumping.

[2] A Norwegian mile is about seven English miles.

greatly impeded the company's movements, and the transport was very hard work.[1]

On this march the second breakfast was prepared and eaten in the field. While marching the men got quite warm, and to keep themselves from chill during a two-hours' halt, every man had to take off his coat and shirt and, two-and-two, rub one another's bodies with snow; after this the dry shirts, carried in the packs, were put on, and the men moved about for five or ten minutes for the skin to recover its normal temperature. This was done in sunshine, but in about an hour later the thermometer marked 14° Fahr.

Such "snow-baths" were often taken voluntarily without any case of catching cold, but the men were also in the habit, after a hard field day, of taking a cold rub down in quarters.

As reconnoitring is the special duty of this company, exercises in scouting and sending in reports took a prominent place in its training. Such exercises were carried out from the outset with much care, at first singly and later on collectively.

To render the scouting more difficult, the company was brought in small parties by tortuous by-ways to the starting point, from which each man had to find his way as best he could to a given point. Even if the detachment at first kept pretty well together, it soon spread out, and after a few hundred metres each man had as a rule taken his own line.

These exercises afforded excellent practice in both scouting and snow-shoeing.

During the third week's training there was an obligatory scouting competition for the whole company, combined with field firing. The distance between the various points which it was compulsory to pass through was about 13 km. (8 miles) as the crow flies, but owing to the nature of the ground the shortest practicable way was at least 15 km. (9½ miles).

The three platoons were drawn up on the shore of a small lake, and all three started simultaneously, a few men at a time. At another lake individual field firing was carried out, 5 shots at a "head-and-shoulders" target at about 200 m., after which the course was continued.

On handing in the report the award "approved" or "not approved" was given, betokened by a "plus" or "minus" sign, and this with other marks decided the order of merit. Those who got "not approved" for their report were disqualified for the prize competition.

The order of merit in the competition was thus determined:—To the time taken from start to finish in minutes was added the number of misses in the firing, multiplied by three, *e.g.*, time 1 hour 35 minutes and 2 misses = 95 + (2 × 3) = 101 F. of M. The man with the lowest F. of M.[2] was first, and so on.

This competition was very fatiguing, notwithstanding the comparatively short distance traversed. The country was broken and

[1] This account of the transport is not quite clear. If the train took an hour a mile longer than the company, the latter must have gone on ahead, and there would be no necessity for *them* to move in double file. If the haulers were in double file, and there were two men on a rope, there would be four men hauling, and the man behind would be not the 3rd but the 5th; with ten men per sledge, this would give two reliefs.

[2] Fewest minutes, fewest misses.

difficult to get over, very intricate to find one's way through, and as regards the wooded parts, "virgin," which in snow-shoe parlance means entirely devoid of snow-shoe tracks or paths.

The thermometer had during the day been up to freezing point in the shade, and as high as 42·8° Fahr. in the sun. The snow was deep and soft.

Everyone, therefore, fully enjoyed the rest for dinner; but the scene soon changed.

At six o'clock the "alarm" quite unexpectedly called the company to fall in again.

All fatigue was at once forgotten. In a twinkling the men had carbines and packs on their backs and snow-shoes on their feet. The company was to move out to an important cross-road about 10 km. (6¼ miles) as the crow flies to stop the advance of a force of the enemy's cavalry. The company marched off at 6.15, and to judge from the pace set from the very start by the company commander, the danger must indeed have been pressing.

After a few kilometres the ground became so difficult that we had for the most part to "slant" up the wooded slopes; but we always kept going. Now and then the moon peeped through the clouds, but only for a few moments at a time, as if to laugh at our restless struggles up the heights.

When we had been thus literally climbing up hills for two hours, and were just beginning to get near our goal, the company commander received a communication that the enemy had broken in by another way, and that the company was to go back, partly the same way it had come, and hasten to meet the attack.

The march up had been hard, and the going down was by no means easier. The wood was thick, and the moon persisted in hiding herself behind the clouds. Down we went at a rattling pace; again and again the branches of the trees hit me in the face, and hurt me so that several times I was for some moments knocked quite senseless. We now found that our regulation fur caps were as unpractical in the dark as they were in sunshine.

Now and again a steep bank caused some falls. Some perhaps succeeded in getting past, while others, in their praiseworthy efforts to overcome the obstacle, went head foremost in the snow. All wished to get to the front as quickly as possible, and so the company broke up into several small detachments, all of which strove hard to reach the common objective.

The wood here was scoured in all directions by snow-shoe tracks, and it was evident that in the dark it was more a matter of luck than of skill to hit on the right way. Most, however, gave a good account of themselves. I myself, after a while, came up in rear of a section that had been less lucky than others in their choice of direction; but I do not at all regret this mistake, for it gave me the opportunity of taking part in a run, the many pleasant points of which I never shall forget.

We struggled forward, or rather upward, as well as we could, fully convinced that we should soon catch up the main body of the company; but in spite of all our efforts we were completely "thrown out." It was nearly midnight, and we could hear nothing of friend or foe. By the light of a few matches, compass and map were consulted, and the result was that we resolved to make our way home to Skar by the nearest route, because if the company had continued its

march to the appointed objective we were thus bound to come across it.

Now came the question of choosing the best way, and then the difficulty of following it. The map showed that we had difficult slopes to "clear," and that several of them were broken by rocky places so steep that it would be impossible to cross them even in broad daylight. At last we agreed on the route, and the section started off.

The cold had come on severe, and our snow-shoes glided over the snow with a crackling sound. It chanced that there were in this small detachment a couple of the torches provided for the expedition, and by the light of these we were soon steering gaily down the slopes. The small but plucky soldier D—n led the way with a torch in each hand. The faster we moved the clearer shone the torches, throwing fantastic shadows on the snow and reminding us of the giants and fairies of nursery tales.

Guided by our shining light, two more small detachments, who like us had got on the wrong road, joined on to us.

All of a sudden we heard a crackling noise; the torch-bearer was standing on his head and had driven the torches deep down into the snow. The result was to draw a black curtain over the eyes of his comrades. In a moment there lay eight or ten snow-shoemen, sprawling, laughing or growling, all in a heap. Soon, however, all were afoot again. Like the knight in the story, they trembled to ask one another whether they still "hung together." Yes; no bones broken, no snow-shoes even damaged, and by a number of jocose questions and answers as to their comrades' well-being, it soon became evident that the good humour of the party had not been in the least ruffled by the mishap.

So on we went, but without torches. I will not weary the reader with the further little adventures that occurred during the rest of the run, but will only say that seldom or never have I taken part in a more lively snow-shoe expedition. About 1.30 a.m. we were back at Skar, where we were received with many merry words of welcome by our comrades, who, while looking out for our arrival, had already partaken of a substantial supper.

At ten o'clock next morning we started to march to Frognorsæter, and when we got back from there at six in the evening, many of the company had been from 22 to 23 hours on snow-shoes out of the last 33. This is good proof of the men's endurance, when we consider that they were encumbered with carbine and heavy pack, that the ground traversed was particularly arduous, and that with all this not a man fell out.

Two days later—on the 26th February—we set out on our last field march from Skar. It was intended to do a longer and faster march than we had done yet, but owing to the deep and soft snow, and the (in places) difficult ground, we could not on the first day keep up a pace of more than $3\frac{1}{2}$ (English) miles an hour.

At the beginning of the manœuvres the snow was already more than a metre deep, and now it was nearly twice as much. The trees were weighed down with heavy masses of snow, and in many cases the heads of the pine-trees were broken off about two metres from the top.

To show what sort of country we had to get over, I will relate that in running down one wooded slope there were only two men who

got down without a fall, and there were in the company, as has been already stated, many good snow-shoemen. Many had to throw themselves down on purpose in the snow to avoid running on to a man fallen in front of them in the thick wood.

When we reached the camping ground, Harestuen, darkness was already coming on, so we made haste to arrange our bivouac in a quiet and shady pine wood. Lying around the fire places in our shelter tents we were soon enjoying a real soldier's dinner, peas and bacon, which, savoured by hunger and good humour, tasted far better than the most delicate feast in ordinary circumstances.

Whenever on the march or at manœuvre dinner was eaten in the field, specially prepared preserved provisions were used, so that the meal could be got ready in half an hour—a great advantage when troops get into camp tired and late in the day.

When we had made all necessary arrangements for the night we paid a short visit to a shieling near the camp belonging to one of the men. Here there were warm rooms and comfortable beds at our disposal, but we nevertheless soon went back to our shelter tents, crept into our excellent sleeping bags, and enjoyed a thorough good night's rest.

Throughout the Norwegian infantry the great-coat is replaced by a sleeping bag of waterproof canvas and a thick roomy woollen jacket—the so-called *Iceland jacket*. These articles are exceedingly practical for winter bivouac, while, on the other hand, the great-coat affords in such circumstances a very unsatisfactory protection against cold. One cannot well wear a great-coat on the march or at manœuvres, whereas the "Icelander" can, if required, be easily worn, and so it seems to me that the change above described is thoroughly practical, especially as the sleeping bag is so made that it can be used by sentries as a shelter from rain and wind.

I know that the correctness of this opinion will be contested by many; but as I have myself spent many nights under canvas, both wrapped in a great-coat and imbedded in a sleeping bag, and found the latter indisputably preferable, I will only advise everyone interested to try for himself.

I cannot sufficiently recommend such an outfit for a snow-shoe tourist, who must spend many nights in the open air or in very indifferent quarters. With a sleeping bag big enough for two, one can make oneself comfortable in all weathers, and if it has a draw-band it must of course be long enough to allow one to get right inside.

Next day we had a very hard bit directly after starting, going up 400 metres in the first 4½ km. (2¾ miles)—an ascent of 1 in 11. As we had had nothing to eat since 6.30 in the morning and had marched without any rest, except some short halts for closing up, from 8 till 2, we began by this time to feel very empty inside, and when the company commander asked me if I was hungry, I am afraid I answered him somewhat curtly.

At 3.30 we halted for coffee, and then marched on to Skar, which we reached at 7 p.m. This was our last expedition from Skar.

The manœuvres had been carried out according to the programme approved for the summer, with this only difference, that everything had been done on snow-shoes.

Of special interest were—besides the above-related marches and scouting exercises—the firing exercises, which finished up with field

firing individual and sectional, reconnaissances, outpost, skirmishing and camping practices, as well as company drill in close order. For the last no special regulations were issued, but the prescriptions of the Infantry Drill were adapted in the simplest and most natural manner.

The equipment of the cyclist company is, of course, essentially different in summer and winter. In the former the ordinary infantry clothing is worn, with which even at that season the sleeping bag and Iceland jacket replace the great-coat.

Last winter the cyclists were equipped with several articles of new or improved pattern.

The experimental uniform, made of very thick, warm, and smooth, mountain-grey cloth, proved very serviceable.[1] The badges of rank are, for company officers, 1, 2, or 3 stars; for non-commissioned officers, 1 to 3 small stripes of red cloth, on each side of the collar. Trousers close fitting round the calves.

The head-dress was either a cap with a leathern peak, or, one with a cloth peak, and a cloth continuation, so arranged that either can be let down independently.[2] The cap is the same for officers and men.

For *hand covering*, gloves with fingers are worn, and over them mittens with long wrists. On a snow-shoe march the mittens alone give sufficient protection, and are very convenient for work in camp.

Boots were of the regulation infantry pattern, laced, with very low and thick uppers, and projecting soles. In addition, a pair of toe caps are sometimes worn. Instead of socks, woollen foot wrappers were worn along with gaiters, which were like closely-knitted stockings without feet; these gave great satisfaction.

To protect the head, neck, or stomach, or other part of the body, a woollen band called *skärf*, 2 to 2½ metres long, and at least ¼ metre wide, was used. An older pattern was knitted and very thick, while a later one is of thin flannel, which seemed preferable. The length might be increased with advantage to 2½ to 3 metres, and the width to about half a metre. The *skärf* is a specially serviceable garment; it is, moreover, cheap and light to carry, and should never be wanting in a snow-shoeman's kit.

The canvas back-bag, with cane framework, might well be substituted, throughout the infantry, for the knapsack. The weight of the pack is more evenly distributed over the back by means of the framework, and falls principally low down, which is very important, especially for a soldier on snow-shoes.

Snow-shoes were either supplied by the Government or provided by the men themselves at a fixed compo. per day. In the latter case, the pattern was optional, but all used Telemark snow-shoes. If a man's snow-shoes were damaged on service, he was compensated by Government up to a certain amount.

There was on the contrary a great variety of *fastenings*. All agreed that the snow-shoe ought to be so firmly attached to the foot as to yield to its least sideward movement, without the upward or

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[1] From the description that here follows, it seems to be very similar to our serge jacket, with four outside pockets.

[2] This is what, in the Alps, is called a *passe montagne*, a cap covering the whole head and neck, and open in front enough to allow of seeing and breathing.

downward motion of the heel being in any way hindered, or the fastening causing any uneasy pressure on the foot.

The means of applying these principles as above stated, varied much; among several more or less ingenious fastenings, some were found very practical. The Huitfeld fastening met with special favour on account of its simplicity and durability. It seemed to fulfil all reasonable requirements of a good snow-shoe fastening, and its only drawback at present is its high price.

As regards *sticks*, the Government supplied only one per man, and most of the men who provided their own snow-shoes had also at the beginning of the manœuvres only one stick each, as a rule, without a *triss*,[1] but by the time we left Skar at the end of three weeks, all had got *two* sticks *with trisses*. The reason of this was, that at times the snow was deep and soft, and the ground over which we manœuvred very broken.

It is generally considered in Norway that the snow-shoe stick should only be used as a help in making sharp curves, or as a strong brake. This may be correct as regards a *single* snow-shoeman, for a good "skidder" should have his body so under control as to be ordinarily independent of a "third leg."

It is otherwise, however, with a *snow-shoe company*, in which one cannot expect all to be equally proficient. It is a question of getting the whole party quickly across country, and it is quite reasonable that the less skilful ones should "ride" down hill on a stick, so as to avoid falling, or delaying the march. A fall, too, may result in damaging a rifle.

It is not, therefore, considered "bad form" in the Cyclist Company to use a stick; but, there is a limit to all things, and a man who is too fond of getting on his "hobby horse" soon earns the not flattering soubriquet of "horse snow-shoeman," and may find himself further promoted to the dignity of "cavalry captain."

On the 29th February, the Corps Commander, Colonel Steffens, inspected the company at Skar, and expressed his entire satisfaction with the company's exemplary conduct as well as with the good result of the manœuvres.

Two days later, the company moved away from Skar to join the garrison of Christiania, and take part in their three days' local manœuvres in the Bærum district, west of the capital.

I left this place with sincere regret, and I shall always retain pleasant recollections of the three weeks that I had the honour of spending with the Söndenfjeld Cyclist Company at these, their first winter manœuvres.

At 10 a.m. the same day (2nd March) the "state of war" began.

The whole of the infantry were on snow-shoes, and the ease and quickness with which they moved over the country lent much variety and interest to the manœuvres.

Within a few hours, the Guard company[2] had executed a very pretty movement by which they succeeded in getting unobserved to a distance of about 250 metres from the outer flank of the enemy's artillery in action.

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[1] A small disc, or rim with spokes, fixed near the lower end of the stick to prevent it from going too deep into the snow.

[2] The Norwegian Guards consist of only 2 companies of foot.

The artillery and cavalry also moved with great agility; the former especially showed wonderful smartness in taking up and in evacuating their positions. In spite of the deep snow, the cavalry did not at all confine their movements to the roads. Many a bold ride showed that both men and horses were well prepared to meet the by no means small demands made upon them. For instance: the recruit squadron on the first day, over difficult ground, made an excellent turning movement by which they could have blown up three bridges on the enemy's line of retreat.

The Bearer companies even were on snow-shoes. The transport of the wounded from the fighting line was carried out with ease and comfort on specially constructed sledge stretchers running on snow-shoes.

The umpires also were often seen on snow-shoes, and, in fact, many of them used them throughout the manœuvres.

The troops displayed a remarkable aptitude in fixing up camp well and quickly. Both sticks and brushwood were always at hand.

To conduct troops on the march quickly and well together through large tracts of wood is by no means easy, even under ordinary conditions, and it becomes still more difficult when the troops are on snow-shoes. One often hears it said that to make a good snow-shoe company only good snow-shoemen are wanted. The latter, however, is but one of the requirements of the former. Individual skill on snow-shoes *alone* can *never* make up for lack of training in moving in regular formations.

Thanks to the good training of the troops there were on this occasion many good marches on snow-shoes, both as regards pace and keeping together.

After the second day's manœuvres, when the troops had been at work uninterruptedly from 6 or 7 a.m. till 1 p.m., the Headquarters rode to the Bærum ironworks for the *critique*.

T.R.H. the Crown Prince and Prince Gustaf Adolf were pleased to visit the camps. Prince Gustaf Adolf had driven on a sledge that morning from Christiania to the manœuvre ground, and had followed the movement of the troops throughout the day on snow-shoes.

In spite of the hard work done by the troops during these two days, they showed no signs of fatigue. A good proof of this is, that on the afternoons a great many amused themselves in jumping on a snow-shoe slide in camp.

At the end of the third day's manœuvres, the troops were sent home, and marched straight back to Christiania, where the march past took place, first before H.R.H. the Crown Prince, and then before the Commandant Lieut.-General Mellby, who had throughout directed the local manœuvres.

The Cyclist Company was then dismissed. It was with feelings of gratitude and regret that I left this brave company—gratitude for the great kindness and hospitality that I had met with in this section of our brother-army, regret at having now to take leave of my new comrades, among whom I had spent such a pleasant time.

HOW SHALL WE DEAL WITH THE WOUNDED IN A NAVAL WAR?

By Vice-Admiral D. PASCHEN, Imperial German Navy.

Translated by permission from the French translation in the *Archives de Médecine Navale* (Dr. E. BELLET) by Fleet-Surgeon C. MARSH-BEADNELL, R.N.

SINCE the outbreak of the Russo-Japanese war, the question of affording aid to the wounded in naval battles has indeed become sober reality. France has, it appears, but quite recently taken the initiative, in submitting a proposal to the Hague Tribunal concerning the organisation of these aids. The writer has, therefore, thought that it would prove not uninteresting to present here the authorised opinion of an officer holding a high official position in the German Navy—Vice-Admiral Paschen—on this so much discussed subject.

The pages devoted to the study of this question in the *Deutsche Revue*, by Vice-Admiral Paschen, are very concise, and contain observations replete with interest and common-sense, which prove that our neighbours have not neglected this question of tending the wounded in their arrangements for war afloat. We reproduce here the whole translation, summarising, however, the historical part of the enumeration of the texts of the Hague Convention.

Much has been written and much said upon the subject of dealing with the wounded in a maritime war, particularly during the actual fighting. Directly, however, that we make a searching inquiry into the actual condition of things, we are compelled to admit at the outset that proper attention to the wounded will be possible only after fighting has ceased, and that during the action they will have to be left entirely to the care of their comrades or to look after themselves so long as circumstances demand.

Without doubt the losses in a modern naval battle will be tremendous. The captain of a vessel that has been injured to an extent which merely impairs her seaworthy and fighting capabilities would regard a large number of wounded as much an encumbrance, as when, owing to grave damage, he would be compelled to seek the nearest port. Hence it would be desirable to ensure the rapid removal of wounded by means of a vessel specialised for this purpose, after which they could be dealt with in the same manner as would be the victims of a battle on dry land.

Unfortunately, however, in this respect, the conditions of a naval war are not favourable; indeed, we may say are most unfavourable. There is certainly no longer any doubt that all civilised Powers, in the plans of their military operations afloat in the event of war, have included hospital-ships for use on the high seas. Further, it is a fact, that in every case the presence of such vessels, completely equipped, has been guaranteed in the German Navy.

Now, as regards the duties of these ships, their anchorage during preliminary operations, and their station during the actual battle, all agree that we must not hope or expect to be able to utilise more than a third part for the accommodation of the wounded and shipwrecked during the naval engagement. In the case of a possible suspension of hostilities, the chance of assistance from a neutral ship, although unlikely, must be borne in mind.

The ultimate result of battle must be settled before we can dream of aught else. So long as there are wars, we must, perforce, always rely upon fighting, with all its ugly *sequelæ*, as the only decisive means of enforcing peace. All complications and all circumstances that prevent or retard the final issue entail, in the long run, a hundred-fold more mischief and suffering than would have occurred had no impediments arisen.

The attention of the Commander-in-Chief must necessarily be wholly concentrated on the fighting. Precepts of humanity at so crucial a moment can have no concern for him. In a naval battle there are doubtless certain humanitarian laws, framed for the purpose of obviating needless cruelties, which one cannot afford to ignore; nevertheless, they must not be allowed, for a single moment, to interfere with the course of hostilities.

Be that as it may, what can be done for the wounded on land is out of the question afloat. The stretcher-bearers on the battle-field, advancing as far as they wish into the line of fire—this depends solely on their personal bravery—carry away the wounded to the dressing stations. They do not interrupt the battle and the battle heeds not them.

Experience is wanting[1] with which to furnish an exact idea of what would happen in a great naval war between two equally matched adversaries. With improvements in the actual implements of warfare it may be predicted that the course of a naval battle will, in its particular phases, be so violent, and in some ways so brief, and at the same time its area of belligerency so vast, that if neutral ships, placed outside the danger zone, furnish aid to a ship much damaged or in danger of sinking, they will find themselves in the midst of fighting when their work commences.

Of course, it may be urged that no commander would take any notice of hospital-ships, unless they got in his way and hampered his movements. Granted, but then neither would he look upon hospital-ships as sacred if in any way they *did* hinder him. Besides, no State would guarantee the invulnerability of any ships daring to render aid at such a time, nor think of claiming it for her own vessels. Circumstances quite preclude such an idea.

That is why these hospital or relief ships can only keep their allotted anchorage, if such is completely external to the limits of fighting—that is to say, not only outside the range of projectiles, but beyond even the possibility of being compelled to shift berth in virtue of any change in the state of hostilities.

People not conversant with naval matters have somewhat distorted ideas as regards the nature of a modern naval engagement, which, under some circumstances may extend over a very extensive area. Now hospital-ships must take up a position outside this area, where they will be unmolested by the enemy.

[1] This article was written before the battle of Tsu-shima.

When will a hospital-ship be able to begin work? Towards the close of battle? And what marks the close of battle?

The lowering of the flag, that is to say, the unconditional surrender to an adversary, signifies the cessation of hostilities in so far as that particular vessel is concerned. The enemy will on no account permit a neutral ship to extend assistance to a vessel, which has not hauled down her colours.

With the lowering of the flag, the vanquished ship becomes relatively immune. She passes into the possession of the enemy, remaining, however, subject to rescue. For this reason, it follows that if the man-of-war wishes to discharge her wounded, she should first find a locality where she will be left unmolested, always presuming, of course, that she is in a condition to do so.

Looking at things from the above point of view, we cannot fail to recognise the expediency of a regulation, which establishes the following—that it is imperative for vessels of lighter draught to come alongside the heavier men-of-war, in order to render assistance should fighting permit. Under these circumstances, cruisers should be well drilled in the performance of such evolutions, and be prepared accordingly. Once more, however, let us not overlook the fact that the skilful control of battle at the decisive moment is of primary importance, also that cruisers have to be employed for fighting and pursuing as circumstances demand.

To recapitulate, then, the active work of hospital-ships and of attending to the wounded commences directly the battle is over, at which time there will be an enormous amount of work for the small craft belonging to these vessels, if they wish to save men from sinking ships, that have in all probability lost their own boats.

One thing is certain, nothing could be more out of place than a hospital-ship in the confusion of battle.

It will be sufficient if we merely indicate the difficulty of transporting the seriously wounded from one vessel to another. A hospital-ship demands, in every case, an exceptional *personnel*, which, independently of the knowledge required for tending sick and wounded, should possess in a high degree sailor-like qualities. We feel confident we are not asking too much, and that all will agree as to the advantages of such qualifications, and hope that no question of expense will be raised.

Let us now pass on to the investigation of what can be done on board for the wounded, whilst the battle is still raging. The usual "hospital-of-combat," that is, the station for the wounded during "general quarters," ought to be placed entirely at the disposal of the injured while fighting is in progress. The exigencies of air and light can only be satisfied at the sacrifice of protection, by placing the wounded in an unprotected quarter of the ship.

The only situation that we can entertain as a dressing station during battle, is one beneath the protective deck. Both wounded men and the medical staff would be well sheltered from the effects of shell fire, though naturally they still remain subject to any of the grave catastrophes to which the ship is liable. What a prolonged stay beneath the armoured deck means, when all boilers are in use and all hatchways closed, and when—a likely enough contingency too—the electric light fails, the reader may be left to imagine. Nobody would wish to maintain, we think, that such a place is an ideal one for

wounded and dying men, who will soon pour in in such numbers that the space will be rendered quite inadequate. However, there is no alternative situation. As regards the translocation of the wounded on board, we must remember, above all, that the various apertures in the protective deck will only be open during some of the interregna of battle; for the most part they will remain closed in order to ensure the supernatant condition of the vessel.

He only who thoroughly appreciates the significance of that evolution which on board ship is known as the "transport of the wounded," can truly picture to himself the sufferings that a wounded man will have to endure. For in spite of every precaution, such a transport, involving risk to life, is inevitable, and justified only by the existing narrowness of circumstances.

Dressing-stations, located within a casemate or inside turrets, are, in spite of the danger of gases or paucity of room, safer than those on the upper deck. Hence our custom of acting on the principle, that during real battle, there can be no transport of the wounded or dead.

These will simply be placed on one side, the wounded, with an emergency dressing, which, according to circumstances, will have either been self-applied or put on at a favourable opportunity by comrades. During a lull in the fighting, the surgeon will hasten on deck, in order to ascertain who are to be taken below and who are to be left lying *in situ*.

For this reason, we recognise the indispensability of assuring the instruction of practically the whole crew in the manipulation of the seriously wounded and in the application of first aid dressings and bandages, etc., for the arrest of hæmorrhage.

To conclude, we will give an abridged sketch of the endeavours made by the Red Cross Union, with the object of alleviating suffering in naval wars, and also a *résumé* of the articles of the Conventions, in so far as they pertain to wars of this nature.

When, on 22nd August, 1864, the Convention of Geneva was drawn up for the mitigation of the sufferings of the wounded in land warfare, praiseworthy efforts were soon made to extend these benefactions to those injured in a maritime war.

Attention was principally directed to the experience gained from the naval battle of Lissa, in which the Italian armoured ship "Re d'Italia" was struck below the water-line and foundered in a few minutes. Also from the explosion of the "Palestro," which occurred just after the battle. Out of 650 men, which comprised the crew of the "Re d'Italia," 500 went to the bottom, and, but for the Italian frigate "Duca di Genova," even the remaining 150 would have perished.

On the occasion of the meeting of the Red Cross Union, in 1867-1868, the representatives of the several Powers met, first in Paris, then in Geneva, and agreed to establish, on 20th October, 1868, 15 additional Articles, of which Nos. 6 to 14 contain arrangements relative to the Navy.

. . . . . .

After enumerating the tenor of these Articles (6 to 14) of the Convention of Geneva, and having pointed out the difficulties to be faced in arriving at an International *entente* (International Conference of the Red Cross at Carlsruhe in 1887, of Geneva in 1888, International Congress of Medicine at Berlin in 1890, International Con-

ference of the Red Cross at Rome in 1892), the author of the article concludes thus:—

> "Thanks to the latest rules framed at the Peace Conference of Hague[1] (29th July, 1899), it is to be hoped that we have now reached the end of this intricate subject. The articles, having for their aim the application of the principles of the Convention of Geneva, were signed by Germany, Austria-Hungary, Belgium, China, Denmark, Spain, United States, Mexico, France, Great Britain, Greece, Italy, Japan, Luxembourg, Montenegro, Netherlands, Persia, Portugal, Roumania, Russia, Servia, Siam, Norway and Sweden, Switzerland, Turkey, and Bulgaria.
>
> "It is certain, that in addition to hospital-ships on the high seas, civilised nations already possess and will keep themselves supplied with stationary hospital-ships, transport hospital-ships, and despatch hospital-vessels."

[1] The text of this will be found in the official *Journal* for December 1st, 1900.

THE OFFICIAL RECORDS OF THE UNION AND CONFEDERATE ARMIES.

By Major B. R. WARD, R.E.

BY the courtesy of the United States Government, a complete set of the volumes of this monumental history has been presented to the Officers' Library at Halifax, N.S.

The first series alone—reports and correspondence relating to military operations — including the Index Volume, contains 112 volumes, and occupies some seven yards lineal of shelf accommodation.

Now, while our own official history of the South African War is being compiled, it may be of interest to see how our American cousins set about compiling the history of their great Civil War, and how they finally brought the work to a successful conclusion after a period of 37 years.

The first step towards the compilation was taken by Congress in a joint resolution, approved 19th May, 1864, which directed the Secretary of War to "furnish the Superintendent of Public Printing with copies of all such correspondence, by telegraph or otherwise, reports of commanding officers, and documents of every description in relation to the existing rebellion, to be found in the archives of his Department, since the first day of December, eighteen hundred and sixty." General Grant was at that date, and had been for eleven days, engaged in continuous fighting near Spottsylvania Court House, the war being destined to last for nearly another year.

The completion of the work was marked by the publication of the Index Volume on the 22nd August, 1901, about nine months before Lord Kitchener was able to report to the Home Government that the South African War was over.

The period of the last forty years of the nineteenth century has been more prolific of change as regards war *matériel* than perhaps any previous period of equal duration. At the same time, no two wars of the same period have shown more striking similarities than the American and South African Wars.

The result has been a military renaissance in England, so far as the study of the American Civil War is concerned.

Even before the South African War, attention had been drawn to the Civil War by Lieut.-Colonel Henderson in his "Stonewall Jackson"; and his appointment as Military Secretary to Lord Roberts in December, 1899, was perhaps to some extent an acknowledgment by the Commander-in-Chief that familiarity with American Civil War history was far from being valueless as mental equipment for a practical soldier.

Although the work of compiling the records began in 1864, a large part of the official reports having been copied before the close of the year, a considerable time elapsed before the scheme of publication

assumed definite shape. For instance, no special attention appears to have been paid to the subject of Confederate records until after the fall of Richmond. However, on the 11th May, 1865, Major-General Halleck reported to the Secretary of War that ninety large boxes containing Confederate records had been shipped to Washington.

No adequate staff had been up to this time appointed to deal with the mass of documents that were awaiting examination.

Accordingly, on the 27th July, 1866, a resolution was enacted repealing the resolution of the 19th May, 1864, and providing for the appointment by the Secretary of War of "a competent person to arrange and prepare for publication the official documents relating to the rebellion and the operations of the Army of the United States, who shall prepare a plan for said publication and estimates of the cost thereof; to be submitted to Congress at its next session."

This appointment of one individual to carry out so extensive a work proved totally inadequate, and does not appear to have led to any result worth mentioning.

In 1874 a sum of £3,000 was appropriated to enable the Secretary of War to begin the publication of the records.

In 1875 a further sum of £10,000 was appropriated, and in 1876 a further appropriation of £8,000 was made.

In 1877 the appropriation was again raised to a total of £25,000, which represented the total cost of about 13 years' work.

The work so far, in the words of Mr. Root, the late Secretary of War, "had been carried on spasmodically, without system, under various 'superintendents,' and with divided responsibility, so that it is not surprising that the work was still in an inchoate and unsatisfactory condition."

It was at last seen that the work required the undivided attention of a single head. Accordingly in December, 1877, Captain R. N. Scott, 3rd U.S. Artillery, was put in charge of the work, and the "War Records Office" received its first definite organisation.

After having been for three years in charge of the work, Major Scott recognised the necessity of a methodical arrangement of the matter, so that the general reader might find in one volume a connected account of any military event.

Up to this time the arrangement had been purely chronological. Accordingly in August, 1880, he drew up a further plan of publication, which has since been carried out in its entirety.

The expenditure of £33,000 up to this date represented purely preliminary work; 79 preliminary volumes had been printed, of which no use has since been made, except as printer's copy, in the compilation of the later and regular official publication.

Major Scott's scheme, which has since been printed in the preface of every volume, involved the publication of four series of volumes. The 1st Series—111 books and an atlas—embraces the official reports of all military operations. These reports are arranged according to campaigns and theatres of operations.

Union reports are printed first and are followed by Confederate reports.

Correspondence, not embraced in the "reports" proper, follows in chronological order.

The 2nd Series—8 books—relates to prisoners of war.

The 3rd Series—5 books—contains miscellaneous correspondence and reports, such as the annual reports of the Secretary of War,

of the General-in-Chief, and of the heads of the various corps and departments; also correspondence between National and State authorities.

The 4th Series—3 books—is similar to the 3rd Series, but refers exclusively to the Confederate side.

The last volume—No. 130—contains a preface giving a history of the publication, five pages of explanations as to abbreviations, plan of indexes, etc., a synopsis of the contents of each volume, a special index for the principal armies, army corps, etc., a table showing volumes pertaining to contemporaneous operations, a general index of 1087 pages; and finally, 150 pages of additions and corrections.

Thus after 16 years of preliminary work and 21 years of thoroughly organised and systematic compilation, the Government of the United States has produced, at a cost of about £570,000, what is probably the finest military record in existence.

The above description will be perhaps sufficient to show the immense value of this record to the military and historical student.

In the construction of indexes and library catalogues we have much to learn from America.

A visit to any public library in the States should convince any librarian of the immense advantages obtained by means of the card-catalogue system.

A searcher in the "Official Records of the Union and Confederate Armies" will be equally impressed by the value and importance of scientific indexing.

NAVAL NOTES.

HOME.—The following are the principal appointments which have been made: Vice-Admiral — Sir W. H. Fawkes, K.C.V.O., to be Commander-in-Chief of the Australian station. Captains — J. C. A. Wilkinson to "London"; C. S. Hickley to "Amphitrite"; E. P. Ashe to "Roxburgh"; R. Nugent, M.V.O., to "Gladiator"; H. V. Elliott to "Bacchante"; G. H. B. Mundy, M.V.O., to "Victorious"; D. A. Gamble, M.V.O., to "Canopus"; A. A. C. Galloway to "Swiftsure"; B. J. Yelverton to "Ariadne"; C. H. Umfreville to "Niobe"; E. G. Barton to "Royal Oak"; L. Halsey to "Powerful"; F. St. G. Rich to "Centurion"; C. H. Dundas to "Ocean"; A. T. Stuart, M.V.O., to "Devonshire"; W. De Salis, M.V.O., to "Revenge"; H. E. Grant to "Kent"; H. A. Fyler to "Donegal"; J. R. Bridson to "Hermione." Commander—M. S. Fitzmaurice to "Pyramus."

Vice-Admiral Sir W. H. Fawkes, K.C.V.O., is to hoist his flag as Commander-in-Chief on the Australian station on board the first-class cruiser "Powerful," which ship commissioned on the 10th September at Portsmouth. Rear-Admiral Sir A. B. Milne, Bart., K.C.V.O., hoisted his flag on the 26th ult. at Devonport on board the first-class battle-ship "Victorious," as Second-in-Command of the Atlantic Fleet in succession to Rear-Admiral F. C. Bridgeman, M.V.O.

The first-class battle-ship "Hannibal," having been relieved in the Channel Fleet by her sister-ship, the "Prince George," paid off at Devonport on the 4th ult., and is to undergo a thorough repair. The first-class battle-ship "Ocean," from the China station, paid off on the 16th ult. at Devonport, recommissioning the following day for the Reserve; the first-class battle-ship "Mars" from the Atlantic Fleet, paying off at Portsmouth the same day. The first-class battle-ship "Centurion," from China, paid off on the 25th ult. at Portsmouth, and recommissioned on the following day for service in the Reserve.

The first-class armoured cruiser "Kent," from the First Cruiser Squadron, paid off on the 23rd ult. at Chatham, and recommissioned the following day for the Reserve.

The first-class cruiser "Ariadne," recently flag-ship of Vice-Admiral Sir D. Bosanquet, K.C.B., in Command of the Fourth Cruiser Squadron, paid off on the 11th ult. at Devonport. The first-class cruiser "Amphitrite," from China, paid off on the 11th ult. at Chatham.

Visit of the French Fleet.—The notable event of the month of August was the visit of the French Fleet to Cowes and Portsmouth in return for the visit paid by the Atlantic Fleet to Brest in July. The French fleet, consisting of the Squadron of the North, under the command of Vice-Admiral Caillard, was composed as follows:—

First-class battle-ships—"Masséna" (flag-ship of Commander-in-Chief), "Jauréguiberry," "Carnot."

Coast-defence battle-ships—"Bouvines" (flag-ship of Rear-Admiral Leygues), "Amiral Tréhouart," "Henri IV."

First-class armoured cruisers—"Gloire" (flag-ship of Rear-Admiral Puech), "Condé," "Amiral Aube," "Léon Gambetta."

Third-class cruiser—"Forbin."

Destroyers—"Cassini," "Bombarde," "Flamberge," "Catapulte," "Cerbère," "Arquebuse," "Baliste."

The Channel Fleet, under the command of Admiral Sir A. K. Wilson, G.C.V.O., K.C.B., with the First Cruiser Squadron and the Destroyer Flotilla, were anchored off Cowes to receive the French Fleet, and comprised the following ships :—

First-class battle-ships — "Exmouth" (flag-ship of Commander-in-Chief), "Russell," "Duncan," "Montagu," "Cæsar" (flag-ship of Vice-Admiral Sir A. Moore, K.C.B., K.C.V.O., C.M.G., Second-in-Command), "Prince George," "Revenge," "Albemarle" (flag-ship of Rear-Admiral Sir R. Poore, Bart.), "Cornwallis," "Swiftsure," "Triumph."

First Cruiser Squadron—"Good Hope" (flag-ship of Rear-Admiral G. Neville, M.V.O.), "Kent," "Antrim," "Monmouth," "Donegal."

Second-class cruisers—"Juno," "Dido."

Third-class cruiser—"Topaze."

Destroyer Flotilla.

Third-class cruiser—"Sapphire" (flag-ship of Rear-Admiral Winsloe, C.V.O., C.M.G.).

Destroyers—"Waverley," "Avon," "Arab," "Kennett," "Osprey," "Eden," "Usk," "Blackwater," "Wolf," "Ribble," "Teviot," "Rocket," "Teazer," "Vigilant," "Wizard," "Thorn," "Kestrel," "Vixen," "Flirt," "Racehorse," "Roebuck," "Mermaid," "Greyhound," "Petrel."

Training-ship—"Mercury."

The large ships of the two fleets were moored opposite each other in the following order respectively :—

Line B, nearest the Isle of Wight—"Masséna," "Jauréguiberry," "Carnot," "Bouvines," "Amiral Tréhouart," "Henri IV.," "Gloire," "Condé," "Amiral Aube," "Léon Gambetta," "Forbin," "Good Hope," "Kent," "Antrim," "Monmouth," "Donegal."

Line A—"Exmouth," "Russell," "Duncan," "Montagu," "Cæsar," "Prince George," "Revenge," "Albemarle," "Cornwallis," "Swiftsure," "Triumph," "Juno," "Dido," "Topaze."

On the south side of Line B were moored the French Destroyer Flotilla with six of the English destroyers.

On the north side of Line A were moored the "Sapphire" and the remainder of the English Destroyer Flotilla. The Admiralty yacht "Enchantress," flying the Admiralty flag, lay immediately ahead of the "Exmouth."

The French Fleet anchored off Cowes about one o'clock on the afternoon of Monday, the 7th ult., and Vice-Admiral Caillard, with his rear-admirals and captains, immediately proceeded on board the Royal Yacht to pay their respects to the King. Later in the afternoon His Majesty returned the French Admiral's call on board the "Masséna." His Majesty further entertained the French admirals and captains at dinner on board the

Royal Yacht the same evening. Both fleets were illuminated. On the Tuesday evening Their Majesties attended a reception held on board the "Jauréguiberry" by Vice-Admiral Caillard, the two fleets being again illuminated. On the forenoon of Wednesday His Majesty inspected the two fleets, steaming in the Royal Yacht through the lines, afterwards lunching on board the "Masséna" with Vice-Admiral Caillard. In the afternoon the French Fleet proceeded into Portsmouth Harbour, and were moored alongside the dockyard, the "Masséna" lying in the place of honour alongside the South Railway Jetty, the Channel Fleet shifting berth the same time to Spithead. This is the first time a foreign fleet, as such, has been allowed to enter Portsmouth Harbour and be berthed alongside the Yard. The fleet left Portsmouth during the morning and forenoon of Monday, the 14th ult., and after taking up their formation in Stokes Bay, steamed past the Channel fleet and left for Cherbourg, amid the customary salutes and honours.

The Channel Fleet, under the command of Sir A. K. Wilson, with the First Cruiser Squadron, under the command of Rear-Admiral G. Neville, and the Destroyer Flotilla, under Rear-Admiral A. L. Winsloe, left Spithead on the 15th ult. for a month's cruise in the Baltic, visiting the Dutch port of Ymuiden, Graa Deep (for Esburg, Denmark), Swinemunde (Stettin), Neufahrwasser (Dantzic), and Copenhagen.

FRANCE.—The following are the principal promotions and appointments which have been made: Vice-Admirals—C. P. Touchard to Command of Mediterranean Fleet; C. A. Mallarmé to be President of the Hydrographical Committee; J. J. Bugard to be Commander-in-Chief of the 4th Arrondissement Maritime (Rochefort); R. J. Marqui to be Commander-in-Chief of the 5th Arrondissement Maritime (Toulon). Rear-Admirals — M. J. Aubert to be Chief of the General Staff of the Navy. Capitaines de Vaisseau—P. Auvert to be Chief of the Staff to Vice-Admiral Touchard; D. M. Gauchet to "Masséna"; J. B. C. Degouy to "D'Entrecasteaux"; F. Lecourtois to "Suffren." Capitaines de Frégate — C. F. M. Maudet to "Lalande"; E. M. Barthes to "Durandal."—*Journal Officiel de la République Française.*

Vice-Admiral Fournier struck his flag on board the "Brennus" on the 4th ult. at Toulon as Commander-in-Chief of the Manœuvre Fleet. His last official act was to issue on Order of the Day in which he conveyed his thanks to the flag officers, captains, officers and crews of the fleet for the loyal support he received from all ranks during the manœuvres; he dwelt upon the necessity of such annual manœuvres, in spite of the hard work they entail, and he recalled the satisfaction expressed by the Minister of Marine, during his visit to the fleet, with all he saw. The Admiral proposed to convey to M. Thomson the appreciation of the fleet of the sympathy and regard the Minister has displayed for the whole *personnel* of the Navy and the dockyards, irrespective of rank, and to assure him of the whole-hearted devotion of the Naval Service to the President and their country.

Vice-Admiral Fournier also addressed a letter to Vice-Admiral Gigon, the Maritime Prefect of Toulon, congratulating him on the complete success and rapidity with which the mobilisation of the Reserve Squadron of the Mediterranean and the ships in the Port Reserve had been carried out. He testified to the excellent condition in which the mobilised ships had been kept while in reserve, as proved by the way in which their

duties had been performed during the manœuvres, no breakdowns or hitches of any kind having occurred. He also expressed his extreme satisfaction with the way the 1st Mediterranean torpedo-boat and submarine flotillas had performed their duties, and the excellent results obtained with the practice torpedoes even when discharged at long ranges. In conclusion, Admiral Fournier pays a compliment to the harmonious co-operation between the fleet and the dockyard, which has been productive of the best results, as shown in the rapidity with which the ships have received their stores and been re-coaled.

Vice-Admiral Touchard, the newly-appointed Commander-in-Chief of the French Mediterranean Fleet, will hoist his flag on the 3rd prox. at Toulon on board the first-class battle-ship "Suffren." The admiral was born in June, 1844, and joined the Navy in 1860; he distinguished himself during the siege of Paris (1870-71); and in 1881, as a capitaine de frégate, he took part in the operations in Tonkin. As a rear-admiral he commanded a division of the Squadron of the North, and since his promotion to vice-admiral in April, 1902, he has been Maritime Prefect at Cherbourg and Chief of the General Staff of the Navy, which latter post he is now vacating.

Vice-Admiral Gigon, the newly-appointed Commander-in-Chief of the Squadron of the North, will hoist his flag on the 16th inst. on board the first-class battle-ship "Masséna" at Brest.

Rear-Admiral M. J. Aubert, at present commanding the Naval Division of Algeria and Tunisia, has been selected to succeed Vice-Admiral Touchard as Chief of the General Staff of the Navy, and he is to take over his new duties on the 1st November. Between the 1st inst., when Vice-Admiral Touchard will vacate the appointment, and the 1st November, Rear-Admiral Manceron, President of the Superior School of the Navy, will perform the duties.

Rear-Admiral Germinet hoisted his flag on the 10th ult. on board the first-class battle-ship "Brennus" at Toulon in succession to Rear-Admiral Jauréguiberry in command of the Reserve Squadron of the Mediterranean Fleet.

The first-class cruiser "D'Entrecasteaux" commissioned on the 1st inst. at Toulon to relieve the third-class cruiser "Infernet," as senior officer's ship on the East Indian station; Capitaine de vaisseau Lormier will shift his broad pennant to her at Jiboutil.

The torpedo depôt-ship "Foudre" left Toulon on the 16th ult. for Saïgon, to which port she is conveying the two submarines "Perle" and "Esturgeon," with four second-class torpedo-boats, and is also convoying the destroyer "Rapière," which is to relieve the "Pistolet" on the station, and six first-class torpedo-boats, Nos. 255, 284, 285, 286, 291, and 292.

Launch of the Submarine "Y." — The new submarine "Y" was launched on the 23rd July at Toulon; the order for her construction was given in August, 1901, but she was not actually begun until 22nd May, 1902. "Y" was designed by M. Bertin; she has a displacement of 213 tons, is 140 feet 6 inches long, with a beam of 10 feet 6 inches. She is fitted with explosion motors of 250-H.P., which will be used both for moving on the surface as well as when submerged, and is to have a speed of 11 knots. She is fitted with four torpedo-discharges. The long delay in the construction of this submarine has been due to difficulties in connection with the design of her motors.

M. Lockroy on the Lessons of Tsushima.—Following up his previous letter to the *Temps*, written before the battle of Tsushima, a *résumé* of which was given in the last No. of the JOURNAL, M. Lockroy, in two further letters to that paper, draws some lessons from that battle. He first expresses the hope that the delay in bringing out the new Naval Programme is due to the naval authorities being anxious to obtain the fullest information in regard to the late battle; "how the ships of the two hostile fleets behaved, the method by which the victory was won, and what were the predetermining causes of the defeat—whether to faulty tactics or errors in the construction of the ships. One cannot say it was a stroke of luck that a great battle, involving as it did the loss of so many ships and the death of so many men, has been fought on the eve of the production of our new programme; but we may, nevertheless, congratulate ourselves that this mishap occurred at the precise moment, when the information to be obtained and the lessons to be learnt from it, will be of most use to us."

M. Lockroy, like other critics, finds fault with the Russian Admiral's dispositions, which, however admirable for the purpose of navigating the straits, were quite unsuitable for battle formation, their only result being to form the Russian fleet into an enormous target, some part of which every projectile from the enemy was able to penetrate, and which was incapable of being manœuvred without falling into disorder and confusion. He draws attention to the fact that, owing to the state of the weather, had the Japanese been able to watch the straits with nothing more than their torpedo-flotillas, Rojdestvensky and his fleet would certainly have got safely through. The nervousness of the Russians was shown by their opening fire at so great a distance as 10,000 yards, a range at which it could not be effective. Their shells also were defective, many burst badly, or did not burst at all; but this was not the fault of those in charge of the ships, it was the fault of the bureaucracy, and nobody who knows that bureaucracy will be astonished at any act of culpable negligence of which it may have been guilty. The Japanese, complete masters of themselves, reserved their fire until within 6,000 yards, gradually closing to 3,000, the range at which formerly it was considered advisable to begin an action. In an hour, the fate of the day was practically decided, and four of the most powerful vessels of Rojdestvensky's fleet, the "Borodino," "Alexander III.," "Kniaz Souvaroff," and "Navarin," were engulfed by the sea. "The first despatches," remarks M. Lockroy, "reported that the ships sank, but it is now known that they capsized, which is a very different matter"; and he attributes the catastrophe to faulty construction, and to the lesson from the loss of the "Victoria" not having been taken to heart.

"Rojdestvensky himself," M. Lockroy continues, "was in no way to blame for the faulty design of his ships. He appears to have been a good seaman, but not a fighting one. More preoccupied in measures for furthering his voyage, than in preparation for fighting, he had filled up his battle-ships to their utmost capacity with coal, beyond their ordinary stowage. Naturally, the ships thus overloaded rode deeper in the water, so much so, that the armour belts were almost completely immersed. This excess coal was placed wherever it was possible to stow it, both on the armour and upper decks. As the fires were supplied from the lower bunkers, there was a diminution in the lower weights in the ship, with an increase in the upper, resulting in a displacement of the centre of gravity, which further tended towards helping the capsizing of the ships.

"With regard to these four ships there is no doubt as to what happened, but with regard to the fate of some of the others full details are still wanting. The part played by the destroyers and torpedo-boats does not seem to have been so important as at first made out. When the wind and sea fell, they came out and attacked ships already disabled or *hors de combat*. No submarines were used, as was at first reported, for the good reason that the Japanese cannot as yet work those they have.

"This tragic battle is full of lessons of different kinds. Leaving on one side, for the moment, questions of strategy and tactics, it shows, in the first place, by the annihilation of the principal Russian force in less than an hour, the superiority of fleets whose crews, like that of the Japanese, have been thoroughly trained in the working of their guns, and their officers in the handling of the ships. It shows how foolish and criminal was the action of our late Minister of Marine in suppressing the Grand Naval Manœuvres, and condemning our squadrons, to an enforced idleness. It is only by steady and assiduous training that the men can acquire *sang-froid* and confidence in themselves. The seamen of the capsized ships fought heroically, but their bravery was of no avail, as they were not 'trained.'

"The famous armour belt afforded no protection. It was submerged. We won't speak of it. Recent events have shown that, as I have pointed out in my previous letter, it is necessary to armour the upper parts of the ships, since the ships being considered a large target, the part least exposed to being struck by projectiles is the waterline. The holes made in the ship's side, above the armour deck, tend to the capsizing and loss of the ship. That is the true danger as the Russian catastrophe shows. One can do something to lessen the danger by multiplying the compartments. But an armour protection of the upper works is necessary. This has been already recognised by England in the 'King Edward VII.' class.

"The gun still remains the most powerful weapon in modern battles. This is the most important lesson to be drawn from the battle of Tsushima, and throws a new light on the controversial problem of naval tactics. The events of that battle have shown that for the future naval battles will be fought at distances, which formerly nobody would have considered possible, and that this will necessitate a modification and rearrangement of the principal offensive force of ships—that is the guns. I will not say a revolution is necessary; that is too strong a word. But I can affirm that at a moment when we are drawing up a new building programme, a further evolution has become indispensable. It is taking place in all foreign Navies. It must not be believed that the long-range actions has been a fortuitous accident, which the future is not likely to see repeated. No. On reflection one is forced to the conclusion that it is the result of the present state of things, and the inevitable consequence of accomplished progress, and the successive improvements which have been realised in the *matériel*.

"It is an axiom recognised by all seamen, and which has become almost a common-place, that when two enemies meet, the one who first succeeds in crushing the other by his fire has obtained a success, which is generally decisive. This was Togo's leading idea in both the battles he fought, presumably also it was Rojdestvensky's when he opened fire before he was really within range. The necessity of striking before being struck oneself will necessitate fire being opened as soon as ever it will be effective, and in view of the formidable increase in the range of

modern guns, this will be at a distance of some four miles, as in the battles of the 10th August, 1904, and Tsushima. The more the guns gain in ballistic power, the less will enemies be tempted to approach each other.

"It would have been difficult, however, up to a few years ago, to have fought a long-range action, no matter how powerful the guns may have been. It is the discovery of smokeless powder which has extended the field of battle and rendered Togo's exploits possible. Thanks to it, gunners can see clearly, and the effects produced by their fire can be noted, and it is possible now to correct the aim and regulate the fire with accuracy, however small the target may seem to be, so long as it is visible above the horizon, which was not possible, so long as ships, as was formerly the case, were enveloped in a dense veil of smoke from their own guns. Science and industry are not permitting us to fight long-range actions, but are compelling us to do so. And it is in view of long-range battles that our ships in the future must be designed.

"Herein lies the gun problem, for the ship is simply a floating gun carriage. The principal personage on board, I repeat, is the gun. With long range battles it is necessary that the gun-carriages—called battle-ships and cruisers—should be able to carry more powerful guns than the greater part of those with which they are at present provided. The guns to be what we will call *effective* should be able to pierce at distances of from three to seven thousand yards—the ranges at Tsushima—the upper armour of the new foreign battle-ships, without taking into account the armour belt, which is never reached. The greater part of our guns at present in use are not capable of doing this."

M. Lockroy then points out that the guns in the secondary batteries of the new French battle-ships of the "Vérité" class, even those of them armed with the 7·6-inch guns in place of the 6·4-inch, are incapable of piercing, not the water-line belt, but the armour of the "King Edward VII." on the side above the belt, so that she is invulnerable except to the four 12-inch guns; on the other hand, the "King Edward VII" carries four 9·2-inch guns, in addition to her four 12-inch, with which she would be able to destroy the French ships at ranges when their secondary armaments would be quite useless.

M. Lockroy thus sums up:—

"The conclusion to be arrived at is that we must resign ourselves to the almost complete disappearance of the secondary battery; this is the evolution of which I spoke. It is necessary that we should only mount on our floating gun-carriages guns which are able to pierce armour at distances of from three to six thousand metres. These guns exist, and are the 240-mm. (10-inch). They are very similar to those with which the 'King Edward VII.,' and those with which the new Japanese battle-ships are armed; and in all Navies they are increasing in number on board vessels of war. This tendency is general and is warranted by facts. These guns have the advantage over the smaller ones in that they are armour-piercing, which the others are not; they have this superiority over those of greater calibre, that they can be fitted as quick-firers. By the continuity of their fire they have the qualities of the medium-sized gun; by their power those of the heavy. A ship armed with 240-mm. guns in sufficient numbers is infinitely more formidable than a ship armed with a large secondary battery of medium-sized guns, and four very heavy guns, like the ships we possess at present. If for no other reason, the unity of calibre is an enormous advantage. War is so infinitely complex a business that

we must, whenever possible, simplify the instruments with which it is waged. What confusion—it may, perhaps, be not too much to say what disasters—may not diversity of ships, diversity of guns, and infinite diversity of projectiles lead us to! The ideal should be, *a single type of projectile, a single type of gun, a single type of ship.*"—*Le Yacht, Le Temps,* and *Le Moniteur de la Flotte.*

JAPAN. — *Launch.* — The new first-class battle-ship "Katori" was launched on the 4th July from the works of Messrs. Vickers, Maxim & Co. at Barrow-in-Furness. H.I.H the Princess Arisugawa performed the naming and launching ceremony. Her dimensions are as follows:— Length on water-line, 455 feet; beam, 78 feet 2 inches; draught, 26 feet 7¼ inches, on a displacement of 16,400 tons. The disposition of the armour is similar to that adopted in her sister-ship, the "Kashima," which was launched at Elswick in March last, full details of which were given in the May JOURNAL.

The Captured Russian Ships. — The four battle-ships, "Orel," "Nicholas I.," "Admiral Apraksin," and "Admiral Senjavin," captured from the Russians at the battle of Tsushima, have been renamed the "Iwami," "Iki," "Okinoshima," and "Minoshima" respectively. Considerable progress has been made in salving the Russian sunken war-ships. At Chemulpo, the first-class cruiser "Varyag" has at last been floated. At Port Arthur, the battle-ships "Poltava" and "Peresviet" have been refloated, and both ships have already arrived, the first-named at Maizuru and the latter at Sasebo, under their own steam. It seems quite certain now that the "Retvisan" and "Pobieda" will also both be salved. The armoured cruiser "Bayan" and protected cruiser "Pallada" have both been refloated; the machinery of the former has been damaged, but she has been safely towed to Maizuru. It has been ascertained that none of the Russian war-ships at Port Arthur were blown up or sunk by gunfire. The Russians opened the Kingston valves, having previously greased or protected the machinery and vital parts of the vessels, and sank them to preserve them from the dangerous gunfire to which they became exposed after the capture of 203 Metre Hill, evidently hoping to recover them should the Baltic Fleet succeed in winning back the command of the sea. The "Peresviet" has been renamed the "Sagomi"; the "Poltava," the "Tongo"; the "Bayan," the "Aso"; the "Pallada," the "Tsugaru"; and the "Varyag," the "Soya."

Condition of the Captured "Orel."—The present condition of the captured Russian battle-ship "Orel" is described by a Tokio correspondent of the *New York Evening Post,* who visited her as she lay at anchor off Maizuru early in July. A preconceived idea that the Russian Government had been defrauded and had not received the shell-resisting armour paid for for the "Orel" was not found to be justified. The after turret with its two 12-inch guns had received a full-faced blow on the starboard side, but, except for a little of the hardened surface being smashed for a depth of about one-eighth of an inch, and the puttied surface of the turret generally being flicked with splinters, the only damage it had received was the bending down of the 2-inch roof just over the opening for the starboard gun, where a shell had struck, but nothing of any moment was broken. The heavy wooden sheathing to the poop deck, though plentifully chipped and gouged by shell splinters, showed no signs of burning.

The unarmoured superstructure forward of the poop was simply honey-combed, and both its sides, and its thin sheet deck covered with linoleum were turned into a sieve. Amidships on the upper deck there was such a mess of broken winches, picquet and other boats, ladders, and all the impedimenta of upper and flying decks, that the first impression was that the Russians were right in surrendering. But the idea was dismissed when it was remembered that in designing a modern battle-ship it is understood that all of the top hamper is designed to be shot away, and is quite separate from the battle-ship proper. This ship shows how skilful the designers were, as the superstructure with everything in it all over the vessel is one mass of wreckage, yet not one spot behind the armour has been damaged by piercing. The "Orel" to-day, as an armour-clad, is practically as good as on the day she was launched, this correspondent believes. As a matter of face, it has since been reported that repairs on the "Orel," renamed the "Iwami," have been completed by the Japanese, and she has been sent on her trial trip.

Some forty large shells are supposed to have struck her. On the upper deck one shell struck just forward of the after-port 6-inch gun turret; this wrecked the electrically driven winch. Another entering on the starboard side just before the main mast completely wrecked the boats and bridge connecting with the after bridge, forced down the upper deck, and smashed things generally. One shell striking the port forward 6-inch gun turret, about 2 feet above the upper deck at the butt of two 6-inch armour plates, bent back the lower part of one of the plates fully 6 inches; but, though the surface of the plates was cracked, the metal was not broken, and inside the turret, except for a little bulging, no damage is visible. The armour has done what it was designed to do, for the hardened surface has kept the shell out, while the tough body of the metal, though bent in some parts nearly to right angles has not broken. The fore turret for the 12-inch guns was struck a full blow by a big shell, buc the surface is only slightly scarred. When the 12-inch guns were slewed to starboard in the forward turret, the port gun was struck about 6 feet from the muzzle and broken short off. A splinter from this 12-inch gun smashed the bridge rail, knocked over a 6-pounder gun, and finally landed in the flag rack alongside of the chart-room, fully one hundred feet from the broken muzzle. This splinter measured 36 × 20 × 2 inches. The conning tower was struck by a splinter, which again splintered and entered the "slit," and smashed the glass of most of the different instruments. The chart-room is a perfect wreck. This vessel plainly shows that all instruments in time of battle ought to be faced with mica, or some such material, as flying glass in the conning tower is nearly as deadly as a shell itself. The searchlight on the bridge had been protected by a breastwork of bags of coal. This had been fired by a shell, and the whole thing burnt up. Inside the big 12-inch turret there was no sign of damage; the forward turret shows that at least sixteen 12-inch shells were fired. The turrets each holding two 6-inch guns show no signs of damage inside. On the port side one of the 6-inch guns had been struck and broken off. On the main deck there is very little damage; two of the two-pounders were struck and broken off, another was bent, and another carriage was hit, broken, and the gun thrown back unhurt. In one place only was the 3-inch armour pierced, and in another it was hit at the top edge and forced back. Where the upper deck has been forced down by explosion, the

stanchion tubes are crumpled like paper and the massive bulb tees bent and twisted. On the main deck the torpedo netting was rigged in front the engine hatch casing to protect it from shell splinters.

Below the main deck there is no damage at all, and the armour shows no signs of having been struck. Turning to the upper deck again, all engine and boiler casings, ash shoots, etc., wherever they have faced the gas of an explosion, are flattened like pancakes. The place where the ship suffered most is in the superstructure where there were guns, or likely to be men. The small innumerable pittings in everything exposed above the upper deck, caused by shell splinters, would rather go to prove that Shimose powder is too powerful, and that it breaks the shell up into too small pieces. The cabins on the upper deck are burnt out in many cases, through coal having been stored therein. There seems to have been no lack of coal. The unarmoured forecastle and the unarmoured cabins underneath suffered. "The lesson learned from the ship is, that everything pertaining to the life of the ship and crew must be under armour."

There was found to be not the slightest lack of ammunition of all kinds on board. Some of the sights of the 12- and 6-inch guns and the breech blocks of the smaller guns had been thrown overboard. Out of a complement of over 900 men the "Orel" is said to have had thirty-eight killed and fifty-two wounded.

The ship was a mass of rust and dirt everywhere. The 12-pounders on the main deck looked like rusty shafts of iron, but the 12-inch and 6-inch guns were in better condition. Getting about was difficult, as all the ladders in exposed positions had suffered. The Japanese were hard at work cleaning the ship. She was docked later that day and temporary patches of wood were being fixed over the rents, some of them ten feet square, in the superstructure. It was understood that the "Orel" was to be sent to Kure for repairs, after docking at Maizuru.—*U.S. Army and Navy Journal.*

United States. — *Trial Trips.* — The successful trial trip of the new first-class armoured cruiser "Colorado" over the Cape Ann course, in which the vessel averaged 22·24 knots an hour, marks this vessel as the fastest armoured war-ship in the United States Navy. Previously the armoured cruiser "Brooklyn," with a trial speed of 21·91 knots an hour, was the fastest vessel carrying side armour. The favourable outcome of the trials is particularly gratifying to Navy officials, for the reason that the "Colorado" was the first to be put to the test of a large class of sister vessels, in which are included, besides the "Colorado," the "Maryland," "Pennsylvania," "South Dakota," "California," and "West Virginia." That all of these vessels will have no difficulty in making their contract speed of 22 knots is further suggested by the trials held on 2nd November, 1904, of the "West Virginia," which averaged 22·14 knots in running twice over the same course of 44 miles.

The "Colorado" is unquestionably the handsomest ship in the United States Navy, and what is said of her in this respect, of course, applies to all six ships of her class. In the first place, because of her great length, she has much of the long, rakish appearance of a transatlantic liner. Indeed, as a matter of fact, she is longer than the famous Cunard liners "Umbria" and "Etruria," which were, at one time, holders of the transatlantic record. These vessels are just 6 inches shorter over all than the "Colorado," whose length over all is just 502 feet.

in beam she greatly exceeds the "Umbria," measuring 69 feet 6¼ inches, as against 57 feet 2 inches; but her mean draught is, of course, considerably less, being 24 feet 1 inch, as against, say, 28 feet for the liner. When she is fully equipped for a cruise, and is carrying a normal coal supply of 900 tons, the mean displacement of the "Colorado" is 13,680 tons; but when her bunkers are filled to their full capacity of 2,000 tons, and the vessel carries her maximum supply of stores and ammunition, her displacement is 15,138 tons, which is not so very far short of the displacement of the crack transatlantic liners "Campania" and "Lucania."

The "Colorado" is driven by twin-screw, vertical four-cylinder, triple-expansion engines, whose contract H.P. is 23,000, steam being supplied by thirty Niclausse water-tube boilers, with a total grate area of 1,600 square feet, and a total heating surface of 68,000 square feet. During the trial trip, the engines worked with remarkable smoothness and absence of heating—a clear indication of accurate workmanship both in the shops and by the erecting gangs. The average speed of 22·24 knots for the whole course of 88 miles does not express the absolute limit of the speed of the "Colorado," for on the trip from Philadelphia to New York she indicated as high as 25,000-H.P., and the speed rose to near the 23-knot mark.

The protection of the "Colorado" consists of a complete water-line belt 7 feet 6 inches deep, which has a maximum thickness of 6 inches amidships and thins down to 3½ inches at bow and stern. Associated with the vertical belt is a continuous protective steel deck, which on the flat portions is 1½ inches in thickness, and on the slopes has a maximum thickness of 4 inches, which is equivalent to at least 6 inches of vertical armour. If to this be added the protection afforded by the coal in the bunkers, representing an equivalent of a few inches more of armour, we have a total resisting power equivalent to, say, 14 or 15 inches of vertical armour, so that the shells, even of the heavier guns of the enemy, should find it difficult to penetrate to the boiler or engine-rooms and magazines, except at the nearer ranges, and then only if the hits were made normal to the side of the ship. For about a third of the length of the vessel amidships a wall of 5-inch armour is carried up to the level of the main deck, that is, through the height of two decks, with athwartship bulkheads, of 4-inch armour joining the ends of these side walls. Within this central battery, and mounted on the gun deck, five on each side, are ten 6-inch 50-calibre guns. They fire through recessed casemates, and are provided with semi-circular shields fitting with a slight clearance against the casemate opening, the protection to the guns thus being very complete against shells of 6-inch and even heavier guns. To localise the destructive effects of projectiles that may enter the battery and burst inside, screens of 2½-inch steel extend inboard from the outer wall of armour. These reach back far enough to afford very efficient protection against the fragments of bursting shells that may enter from the side on which the particular batteries are placed.

The main deck extends flush throughout the whole ship, and upon this deck, above the four corners of the 6-inch battery, there are four casemates with 6 inches of protection, in each of which is mounted a 6-inch 50-calibre gun, capable of firing from abaft the beam to dead ahead or dead astern, the total arc of fire being 150°. Between the 6-inch guns on each broadside on this deck are mounted four 3-inch 50-calibre guns, and on the gun deck are eight other 3-inch guns, four firing through casemates at the bow and four at the stern of the ship. The conning tower is protected by 9 inches of armour, and the signal

tower aft by 5 inches. The main armament of this fine vessel consists of four of the new 45-calibre, 8-inch, high-velocity rifles, mounted two forward and two aft in barbette turrets, the turrets being protected by 6 inches of armour with front port plates 6½ inches in thickness. The turrets are mounted above shallow barbettes, and armoured ammunition tubes pass down from the barbettes to the ammunition rooms below the protective deck.

The important question of ammunition supply has been carefully worked out, and the guns are provided with the latest patterns of electric hoists, designed especially for U.S. war-ships. The guns in the main battery are electrically controlled. The electric hoists are capable of supplying two projectiles per 8-inch gun per minute; and for the 6-inch guns three projectiles per gun per minute, which is amply sufficient for the speed of fire that will be obtained during the stress of battle, when constantly-changing ranges and the many distractions of the fight will render impossible the high rates of fire which have been obtained with the same guns during target practice. The normal ammunition supply consists of 83 projectiles for each 8-inch gun, 132 for each 6-inch, and 166 for each 3-inch gun, the weight of the normal supply of the ammunition for all guns combined being about 700 tons. An interesting fact is that the total weight of armament on this ship is 2,219 tons, and the total weight of the machinery 2,100 tons.—*Scientific American.*

Trial of the "West Virginia."—The new first-class armoured cruiser "West Virginia," in her official trial over the course from Cape Ann to Cape Porpoise, on a four-hour run, exceeded the contract speed of 22 knots per hour. The average speed was 22·14 knots per hour.

The weather conditions were perfect. The first leg of the course, 44 knots, was made in one hour and fifty-eight minutes and fifty-nine seconds, which was one minute and one second better than the contract time. The average speed on the leg, 22·19 knots.

The second and last leg of the course, also a distance of 44 knots, was covered in one hour fifty-nine minutes and thirty-four seconds, which was an average speed of 22·09 knots per hour.

The whole distance of 88 knots was made in three hours fifty-eight minutes and thirty-three seconds, giving the cruiser an average of 22·14 knots an hour, or one-tenth of a knot slower than the "Colorado's" time a few days previously. The "Colorado" is a sister vessel to the "West Virginia."

There were eight stake-boats measuring off the course, and which served as guides. The first six buoys were 6·06 knots apart, the seventh 5, and the eighth 6 knots, making that distance just 44 knots in length.

The steering and anchor tests were very satisfactory, and the big vessel turned very easily. She was built by the Newport News Shipbuilding and Dry Dock Company, of Newport News, Va.

Captain James H. Dayton, president of the Board of Inspection and Survey, sent a telegram to the Navy Department announcing that the armoured cruiser "West Virginia" exceeded her contract speed in her trials held over the Cape Ann trial course. She made a speed of 22·14 knots an hour, without the usual tidal allowances. Her contract speed was 22 knots for four consecutive hours. During the early part of the trial the "West Virginia" attained a speed of 22·54 knots an hour.—*U.S. Army and Navy Journal.*

MILITARY NOTES.

HOME.—The following are the principal appointments which have been made :—

Colonels — Colonel (temporary Brigadier-General) A. W. L. Bayly, C.B., D.S.O., I.A., A.D.C. to the King, to be Commandant of the Staff College in India, retaining the temporary rank of Brigadier-General whilst so employed. Lieut.-Colonel and Brevet Colonel A. A. Barrett, C.B., I.A., to be D.A.G. of a Command in India, and is granted the temporary rank of Brigadier-General whilst so employed. Colonel H. W. Barrett, Ordnance Officer, 1st Class, A.O.D., to be Inspector of Equipment and Ordnance Stores. Lieut.-Colonel H. W. A. S. Smyth, Ordnance Officer, 2nd Class, to be an Ordnance Officer, 1st Class, with the substantive rank of Colonel in the Army. Lieut.-Colonel and Brevet Colonel J. T. Johnston, from Royal Artillery, to be an A.A.G., and is granted the substantive rank of Colonel in the Army. Colonel C. E. Bradley, from A.A.G., is appointed Brigadier-General to Command an Infantry Brigade, and is granted the temporary rank of Brigadier-General whilst so employed. Colonel E. A. W. S. Grove, C.B., from h.p., is appointed a Brigadier-General, to Command an Infantry Brigade, and is granted the temporary rank of Brigadier-General whilst so employed.

ITALY.—*Alpine Troops.*—General Ricotti, when War Minister in 1872, may be regarded as the founder of the Italian Alpine troops, and it was owing to his initiative that 15 companies were raised and equipped that year. These troops were meant to conceal the mobilisation, and to guard against first surprises, so easily executed in the Alps. In 1873, on the reorganisation of the Italian Army, the number of these Alpine companies was increased from 15 to 24. In 1874, seven battalions of these troops were formed, and in 1878, the number of companies amounted to 36, forming 10 battalions. In 1882, the number of the companies was doubled, becoming 72 from 36; 3 or 4 battalions grouped together forming a regiment. On his return to the War Department in 1887, General Ricotti, raised the number of the companies to 75, the present effective, forming 22 battalions (called after the districts where they were quartered), and 7 regiments. Thus in 1875, there were about 2,500 men belonging to the Alpine troops, in 1877 there were about 10,000, and in 1904, about 11,000.

Troops of the 2nd and 3rd Line are furnished by men of the Regular Army, passing into the Mobile Militia, and from thence into the Territorial Militia. There are 38 companies of Mobile Militia, and 75 companies of Territorial Militia (22 battalions). All these troops make up a total of an imposing effective, three or four times as great as that for 1904, mentioned above, without including some thousand customs officials, distributed along the frontier. Troops of the 2nd and 3rd Line cannot, naturally, be placed in the same category as those of the Regular Army; there remains, nevertheless, a covering army in front of which troops of the 1st Line might manœuvre. The companies of the Mobile Militia are attached to Regular battalions, and mobilise in the battalion

magazines. The tactical unit being the battalion, the regiment is, as a matter of fact, merely an administrative unit. It is at the regimental depôt that recruits are equipped, and, in time of war, the territorial troops. The companies of the Territorial Militia are attached to the companies of the Regular Army, but their formation into 22 new battalions is organically laid down. According to the budget, the peace effective varies from 110 to 200 men per company. In the non-recruiting period, from October to the end of February, the company consists of 110 men; after the arrival of the recruits it amounts to 180 men, and finally to 200 at the summer manœuvres.

The *Memoriale per l'ufficiale sulle Alpi*, by Major Donato Etna, gives the following distribution of battalions:—

1st Regiment (3 battalions), headquarters at Monclovi, winter garrisons at Oneglia, Cuneo and Mondovi.

2nd Regiment (3 battalions), headquarters at Bra, winter garrisons at Bra, Albe, and Dron.

3rd Regiment (3 battalions), headquarters at Turin, winter garrisons at Turin, Pinerolo, and Rivoli.

4th Regiment (3 battalions), headquarters at Ivrea, winter garrisons at Susa, Ivrea, and Aosta.

5th Regiment (4 battalions), headquarters at Milan, winter garrisons at Bergamo and Milan.

6th Regiment (3 battalions), headquarters at Verona, winter garrisons at Bassano and Brona.

7th Regiment (3 battalions), headquarters at Conegliano, winter garrisons at Padua and Conegliano.

Prior to 1900, an inspector, under the War Department, and residing in Rome, was charged with the instruction of the Alpine troops, in that year, however, the command of these troops was given to the senior general commanding one of the groups, which were also instituted that year. The Alpine regiments were then formed into 3 groups, each under the command of a major-general, as follows:—

1st Group, with headquarters at Cuneo, consists of the 1st Regiment (3 battalions, 9 companies); and 2nd Regiment (3 battalions, 12 companies).

2nd Group, with headquarters at Turin, consists of the 3rd Regiment (3 battalions, 12 companies); 4th Regiment (3 battalions, 10 companies); 5th Regiment (4 battalions, 12 companies).

3rd Group, with headquarters at Verona, consists of the 6th Regiment (3 battalions, 10 companies); and 7th Regiment (3 battalions, 10 companies).

The three great centres chosen are surrounded by modern fortifications. Political conditions as well as the geographical situation necessitate the most considerable distribution of the troops along the French frontier, where the four first regiments may be found. The 5th Regiment detaches 3 battalions directly on the Swiss frontier, its 4th Battalion, as well as the regiments of the 3rd Group, remaining to protect the Austrian frontier.

The equipment of the Italian Alpine troops does not differ, in form, from that of the remainder of the infantry. Their chief characteristic, as in France, lies in the headdress, which is a felt hat, ornamented with a plume. All the facings of the uniform are green, the tunic is dark blue, the trousers light grey, and are tucked into high boots.

Training is carried out in the winter quarters until the end of April. In May, the mountain exercises commence, followed, in July, by the regular manœuvres. The troops are quartered during this period in the highest villages, where special barracks have been constructed. These barracks, of different dimensions, are built by the Alpine troops themselves; they can be used in all weathers, even in the winter exercises they so frequently carry out.

The armament is identical with that of the infantry of the Line. The soldier carries 90 cartridges in peace and 162 in war time.

The mobilisation of the company proceeds in two sections. The first section, composed of men with the colours, leaves a few hours after receipt of the order to occupy the advanced line. The second section, formed by men on leave, assembles at the depôt of the winter garrison, is equipped, and rejoins the first section under command of the cadres, which the latter has left behind. The effectives mentioned above show that there are always sufficient number of men in the first line; even in winter, 110 men will suffice to hold positions prepared and known a long time in advance, the more so as operations from the hostile side would, necessarily, be slow and desultory.—*Précis from Revue Militaire Suisse.*

The Strength of the Army. — In the report presented to the Senate by Signor Taverna at the time of the discussion on the Supplementary Army Credits, much interesting information may be found on the effectives of the Italian Army, of which the following is a *résumé* :—

In Italy the regulation peace effective amounts to 265,000 men, but the budgetary effective, for some years past, does not amount to more than 207,000 men. The senior class is sent down in the middle of September, and the calling out of recruits, for the dismounted branches of the Service, takes place at the end of March. Consequently the period for the maximum effective is only one of 5½ months. During the period of the minimum effective, infantry companies only consist of 52 men, instead of 88, which is their strength during the period of maximum effective.

The average duration of service for the infantry soldier is less than 21 months. As a matter of fact, of the 48,000 men enrolled in the infantry of the Line, 20,000, that is to say, 42 per cent., should put in 3 years' service; 22,000, or 46 per cent., should put in 2 years; and 6,000, or 12 per cent., should put in 1 year's service with the colours. But in reality the legal duration of service is singularly reduced, since men for 3 years only do 29¼ months' service; those for 2 years do 17¼ months; and those for 1 year only do 5¼ months' actual service with the colours, so that up to the present day the actual average period of service for the infantry soldier is 19 months.

The short duration of the period of maximum effective necessitates the carrying out in an extremely short time the complete training of recruits, since the training cannot commence until the calling out of the class, and should be completed at the time when the men discharged from service are sent to their homes. Ordinarily the annual training is completed by the 31st August, and as it only commences at the beginning of April, it may be said that it is done in a maximum of 22 weeks. Under these conditions it is necessarily carried out in a most hurried manner, especially as regards target practice, which should be, as a matter of fact, the most important portion of the soldier's military training.

During the period of minimum effective, it is most difficult, not to say impossible, to continue the training. As a matter of fact, the theoretical average effective of 52 men falls in most regiments to 45 men. From this number must be deducted the sick, men on leave, men employed on various duties, etc. Under these conditions it was reasonably asserted that on the 1st February, 1905, the total number of men available for training was 15,000 for 94 infantry regiments; there was thus an average of 160 men per regiment and about 13 per company. It must be understood that in these figures no account is taken of men detailed for police duty. In reality, then, in many regiments on the 1st February, 1905, the men available for training did not amount to 6 per company.

The number of men called to the colours for a period of training amounted in 1904 to 60,000 men.

The calling out of recruits at the end of March has a very serious effect on the composition of companies in the event of war, should the mobilisation take place in the spring. According to the assertions of the War Minister, should the mobilisation take place in June, the recruits would be left at the depôts, and in order to complete the companies, recourse would have to be had to men coming from the senior class; that is to say, to men no longer young. Normally, companies should be brought up to war strength by the 3 classes with the colours, and by the 5 following classes which are on furlough. During this 5 years' period of furlough, Reservists only put in one period of training, whilst in Austria they do three in 7 years. It must be observed that the excellence of the cadres suffers fatally from this state of affairs. The cadres cannot instruct themselves if, during the greater part of the year, they have only skeleton commands. It is in order to remedy all these inconveniences that the Italian Government has asked for the necessary funds to call out recruits in the middle of November.

Signor Taverna remarked in his report that as regards the training of Reservists, Italy is far behind other European Powers, as every year Austria calls out 400,000 and France 420,000 men, whilst Italy's financial resources only permit of her calling out 60,000 Reservists.—*La France Militaire.*

JAPAN.—*Steps for Increasing the Recruiting Resources.*—With a view to increasing the number of young men available for military service, the minimum height fixed up to the present of 4 feet 11 inches, has been reduced to 4 feet 9 inches. In addition, the *Official Gazette* of the 20th April, 1905, published a decree with reference to the calling out of men belonging to the National Army. All men belonging to this category who have been passed as fit for service may be immediately called to the colours.

This decree especially aims at those who have been exempted from military service, on account of employment in public education, such as professors, instructors, etc., who are all passed into the National Army after a few weeks' training with the Regular Army. The War Minister may, in an emergency, call out all the men of the National Army, all exemptions, no matter for what causes, being abolished. Every Japanese, from the age of 20 to 40 years, passed fit for service is thus available to be called to the colours.

An order published by the War Minister retains, in addition, with the Army all reservists of the Territorial Army, who would legally be freed from all military obligations on the 1st May, 1905.

New Categories of Men Available to Replace and Reinforce those of the Field Army.—The *Official Gazette* of the 21st April last, published an Imperial Order, placing at the disposal of the War Minister all the forces of the *Kokumin* (Territorial Army), both 1st and 2nd Parts, to feed and increase the Army in the field. This Order contains the two following Articles :—

Art. 1. The following categories are placed at the disposal of the War Minister, who will regulate the necessary measures for their successive call to the colours :—

a. Men who have served their time with the colours, and who at present form a portion of the 1st Part of the *Kokumin*;

b. Men who have drafted into the 2nd Part of the *Kokumin*, after serving 6 weeks in the Regular Army;

c. Men who have passed through the 2nd Part of the *Hoju*[1] (recruiting reserve), and thence drafted at once into the 2nd Part of the *Kokumin*.

d. Men who have served neither in the *Geneki* (Regular Army) nor in the *Hoju*, but who have been directly drafted into the 2nd Part of the *Kokumin*, in consequence of an excess in the number of conscripts passed fit for service over the number required for enrolment in the *Geneki* and the *Hoju*.

In case of war, or during a period of political tension, the War Minister may also order the enrolment of men of the *Kokumin*, 2nd Part, other than those mentioned above.[2]

Art. 2. The successive calling to the colours of the categories mentioned above will be carried out individually, conforming, according to the case, to the ordinary measure adopted for the calling out of conscripts, or of that for men of the *Hoju*. The War Minister will be vested with the right of determining the dates of calling to the colours and of disbandment. The present regulation will come into force on the day of its promulgation.

To sum up, the new Imperial Order allows the War Minister to rely, for the replacing and reinforcement of the Army in the field, on reserves forming all the categories of men still remaining, from 20 to 40 years of age, no matter who they may be, who are liable to military service. In cases of necessity, he may even call out those between 17 and 20 years of age. In round numbers, the assembly of all the classes considerably exceeds a million men.[3]

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[1] As was shown in the JOURNAL for June last, p. 724, there is now only one portion of the *Hoju*, the 2nd Part having been abolished by the Imperial Order of the 28th September, 1904.

[2] This includes men conditionally exempted, in addition to those mentioned before, and all men of from 17 to 20 years of age.

[3] In 1902, the last known official statistics, 539,282 reached the age of 20 years; 187,907, or 34·84 per cent. were declared absolutely fit for service (45 per cent. were drafted into the Regular Army, and the remainder distributed between the 1st and 2nd Categories of the *Hoju*); 108,016, or 20·03 per cent., not being thoroughly fit, were drafted into the *Kokumin*, 2nd Part; 49,354, or 9·15 per cent., were exempted for family or professional reasons; the remainder, 194,003, or 35·98 per cent., were exempted.

Of this number, the supply of combatants, that is to say, of men of from 37 to 40 years of age who have served 3 years in the Regular Army, or of men exempt for various reasons, who have completed 6 weeks' service, should not amount to 35,000 men. The remainder, at any rate, as regards those meant to reinforce the combatants, can only be gradually trained, the means of training and officering them being limited.—*Revue Militaire des Armées Etrangères.*

Army Sanitation in Manchuria. — The remarkable address that was delivered before the Committee on Military Affairs of the House of Representatives by Major Louis Livingston Seaman, M.D., of New York, not long ago, has just been published in full in Clinical Excerpts, and will undoubtedly prove of interest to military surgeons everywhere.

Dr. Seaman was with the Japanese Army, and is thoroughly posted on the condition of affairs in it. This gives particular weight to his assertion that the Japanese would never have won that series of brilliant victories from the Yalu to Mukden unless they had had their Army in the most magnificent physical condition, and that they would not have been in that condition if they had not had the most thorough sanitary government and control that any Army ever yet had in all history.

The author refutes the contention that the Japanese are built differently from our people, and that it is therefore unfair to make comparison with them, and points to the fact that only a few years ago, in their fight with Korea, the mortality of the Japanese was nearly as great as ours in the rebellion. One disease alone, beri-beri, laid out 45 per cent. of their whole Army. Now, simply because they have better sanitation and proper medical supervision and diet, there has not been a single case in the Navy this year.

Six months' continuous service in a torpedo-boat in our Navy, or in the British Navy, we are informed, is considered about enough to incapacitate a man and make him unfit for duty until he gets a good rest; but after six months' service on their torpedo-boats before Port Arthur (which the doctor had an opportunity to inspect), the Japanese Marines were in the pink of physical condition, and simply primed for more work.

In describing the medical and sanitary organisation of the Japanese Army, Dr. Seaman pays a high tribute to its efficiency.

He says:—"They have a medical director of their Army who ranks as a lieut.-general; they have six officers who rank as major-general; they have one who ranks as brigadier-general with every 20,000 men in the line, and these medical officers have power to enforce their orders.

"The Japanese soldier would die from thirst alongside of a tainted well rather than drink water that he had been forbidden to take. He has confidence in his officers, and even if he had not, he would be severely punished if he undertook to disobey sanitary orders. It would not be necessary to go to the commanding officer of the line to get the order, either. Without power to enforce its discipline, sanitary organisation would amount to practically nothing. To prevent a repetition of the same wretched experience as we went through in the war with Spain, the medical department must be vested with power to enforce its regulations. The fixing of high rank with the emoluments that accompany it should go hand-in-hand with the power to enforce such regulations as might be prescribed.

"This would prevent such an incident as occurred in Chickamauga in 1898, when a major-general of the Army, after a medical officer had

declared a certain well unfit for use as containing germs of disease, drank a glass of water before his staff in defiance of the surgeon's prohibition, making the latter the laughing-stock of his associates, saying: 'The water is perfectly good; I will drink it.'

"At Tampa, during the Spanish-American war, a major-general set at defiance the authority of the Deputy-Surgeon-General, when the latter had a ship loaded with medical supplies ready to sail with the Army. 'Discharge that cargo, and load the vessel with mules and men,' was his order. And he sent the whole Army to sea and to battle without any medical supplies whatever. You are aware of the horrible results that followed. Under different conditions that major-general would have been court-martialled; he would have been taught to respect the medical department.

"I was at Hiroshima last summer when 9,860 men were brought from the front. Of that entire number, only 34 died. The vast majority of them got well and returned to the front. There were 1,106 transferred to Tokio, a great many stretcher cases, and of that number not a single man died, although they were shot in almost every possible way. Six of them had bullets through the brain in different directions; nine had bullets through their chests; six had bullets through the abdomen, the point of exit and of entrance being discernible in all cases. And they all got well. That was principally because they were fed on a rational ration, and their systems were not loaded with uric acid and other toxic substances that excite inflammation after injury and cause death.

"From personal experience with the Japanese Army and Navy, I must say that too much praise cannot be bestowed upon the medical department for its splendid preparatory work for this war. The Japanese are the first to recognise the true value of an Army Medical Corps. Care of the sick and wounded consumes but a small part of their time. The solution of the greater problem, preserving the health and fighting capacity of the Army in the field, of preventing disease by careful supervision of the smallest detail of subsistence, clothing, and shelter of the troops, is their first and important duty. Their capacity for detail is something phenomenal. Everywhere—in the field with the scouts or in the base hospitals at home—the one great prevailing idea is the prevention of disease. The medical officer was omnipresent. He was found in countless places where in an American or British Army he is not wanted. He was as much in the front as in the rear; he was with the first screen of scouts with his microscope and chemicals, testing and labelling wells, so the Army to follow would drink no contaminated water. When the scouts reached a town, he immediately instituted a thorough examination of its sanitary condition, and if contagion or infection was found, he quarantined and placed a guard around the dangerous district. Notices were posted, so that the approaching column was warned, and no soldiers were billeted where danger existed. Microscopic blood tests were made in all fever cases, and bacteriological experts, fully equipped, formed part of the staff of every divisional headquarters.

"The medical officer also accompanied foraging parties, and, with the commissariat officers, sampled the various foods, fruits, and vegetables sold by the natives along the line of march long before the arrival of the Army. If the food was tainted or the fruit over-ripe, or the water required boiling, notice was posted to that effect, and such is the respect and discipline of every soldier, from commanding officer to the file in the ranks, that obedience to all orders is absolute.

"The medical officer is also found in camp, lecturing the men on sanitation and a hundred and one details of personal hygiene; how to cook, to eat, and when not to drink; to bathe, even giving them directions as to the care and cleansing of the finger nails to prevent risk from bacteria. Long before the outbreak of hostilities he was with the advance agents of the Army, testing provisions that were being collected for troops that were to follow, and as a consequence of these precautions, he is not now found treating thousands of cases of intestinal diseases, diarrhœa or dysenteries, infectious fevers resulting from improper feeding and neglect of sanitation, diseases that have brought more campaigns to disastrous termination than the strategies of opposing generals or the bullets of their followers.

It is much too early to submit statistical proof; but from careful observation I venture to predict the records of the Japanese hospitals will show a large reduction in the percentage of mortality from casualties, especially penetrating wounds of the skull, chest, and abdomen, and injuries to osseous structures—indeed, of every variety of wounds, except, perhaps, those of the spinal cord—when compared with the statistics of former days. But it is in that far more terrible and pathetic class of losses, the needless sacrifice of 400 lives by preventable diseases for 100 who die legitimately, that the most astounding reduction will be shown. If the testimony of those conversant with the facts can be accepted, supplemented by my own observations, the loss from preventable diseases in the first six months of this terrible conflict will be but a fraction of one per cent. This, too, in a country notoriously insanitary. Compare this with the fearful losses of the British from preventable disease in South Africa, or worse, with our own losses in the Spanish-American war.

"Regardless of the ultimate outcome of this terrible war, history will never furnish a more convincing demonstration of the benefit of a medical, sanitary, and commissary department, thoroughly organised, equipped, and empowered to fight the silent foe. The Japanese do their killing, but they do it differently. They, too, have their tragedies, but they are legitimate tragedies of grim war, not governmental murders through criminal neglect.

"The ration of the Japanese is controlled by the medical department, which has thoroughly experimented with it, and at last established it on an efficient scientific basis. It is the simplest ration in the world—mostly rice and a little bit of meat, a few pickles, and some dried fish. It is a ration the constitution of which would not be practicable for our people, but its chief and best characteristic is its simplicity. It costs about one-tenth of ours. Our ration is all right for a cold country—for an Arctic climate; but for a tropical country it is the height of absurdity.

"The Japanese are a very poor people. Economy is the very first point upon which they have to base their calculations, and yet they can afford, and do afford, to furnish 648 men for each Army division, as against our 82.

"In all the Japanese hospitals there was last summer a very small percentage of sickness in comparison to wounds. I saw ward after ward for the treatment of internal diseases, diarrhœa, dysentery, typhoid, and so on, comparatively empty. They do not have these diseases. They take proper care of their men in advance, so they do not contract these diseases. Their hospitals are for the care of casualties caused by shell and shrapnel. The other cases are absent."—*Scientific American.*

RUSSIA.—*Increased Powers of the Chief of the General Staff.*—The reorganisation of the Russian Army is about to undergo a thorough change. The Chief of the General Staff will in future be placed under the immediate orders of the Emperor, and will be charged with all matters regarding the preparation for war, whilst the War Minister will merely deal with the administration of the Army. In other words, Russia is adopting the German system. This change is of sufficient importance to cause an analysis of the regulations regarding the new duties of the Chief of the General Staff to be given.

The Chief of the General Staff, immediately subordinate to the Emperor, is charged with the direction of staff duties and with the study of questions affecting the preparation for war. He is Chief of the General Staff, which consists of :—

1. The Quartermaster-General's Department.
2. The Department for Military Communications.
3. The Topographical Department.
4. The Department for Railways and for technical troops of the lines of communications.

In addition the Nicholas Staff Academy and all officers of the Staff, topographical officers, as well as those of railway and technical troops, are under the orders of the Chief of the General Staff. At the same time, unemployed Staff officers are only under the surveillance and are not under the orders of the Chief of the General Staff.

The Chief of the General Staff directs the work of preparation for war, and co-ordinates the work of the District Staffs. He directs the training of Staff officers, and is responsible for the dissemination of military intelligence to the Army. He gives the necessary instructions to the head of the Department for Military Communications for both peace and war, as well as to the head of the Topographical Department, and he directs the training given at the Staff Academy. He is by right a member of the Council for War, to whom he submits matters requiring study, after agreement with the War Minister. At the same time, the proposals of the Council to be submitted to the Emperor are presented to him by the War Minister; and the latter must inform the Emperor of the reasons the Council may have for over-riding any proposals of the Chief of the General Staff. It is the Chief of the General Staff who drafts the programme for the manœuvres, at which the Emperor will be present, and submits them to the latter after agreement with the War Minister. He exercises the same control over his subordinates as was formerly exercised by the War Minister, and he has, in a general way, the privileges of a Minister in his dealings with the various authorities. He is entitled to inspect fortresses, their armament, and the different establishments connected with them. It is he who submits to the Emperor the various changes, etc., in the *personnel* under his orders. He decides on the posting to the Staff, or on the return to their corps, of the pupils of the Staff Academy. He acts in conjunction with the War Minister with regard to the posting of officers from the Staff to regiments, and *vice versa*. He submits to the Emperor the list of candidates for district Staff employment, and for Staff billets filled by general officers, after consultation with the War Minister. He also submits the names of all the Staff *personnel* for promotion, and gives his advice with regard to the recommendations for promotion made in favour of officers of the Staff by the personal commanders. In the event of illness or absence, the Chief of the General Staff is replaced by the Quartermaster-General.

It will thus be seen that the power of the Chief of the General Staff has been greatly increased, and that the War Minister has thus been relieved of many very onerous duties. This distribution of powers has already been proved in Germany, and, in imitation of that Power, in many other countries, and especially in Japan. The above-mentioned independence of the Chief of the General Staff, under authority of the Head of the State, undoubtedly secures, in addition to a better preparation for war, a permanency and a continuity of view in all questions of vital military importance.

Results of the Calling Out of the Contingent for 1903.—The operations for the calling to the colours of the contingent in 1903 differed slightly from those of preceding years. Hitherto, as a matter of fact, the Recruiting Commissioners, urban or district, dispensed with the medical examination of all men drawing lots. A prikase of the 30th August, 1902, modified this method of procedure, and laid down the following regulations, which were applied for the first time to the 1903 contingent :—

When the Commission, whilst following the order for drawing lots, has reached the numbers fixed for enrolments in the Regular Army, it will classify the exemptions of the 1st Category in the 2nd Levy of the Militia, and will entirely exempt from military service those men who, by their outward appearance, are utterly incapable of bearing arms; it then examines those men remaining who *wish* to be medically examined at once in order to know in what levy of the Militia they will be classified. Those who are passed as thoroughly fit for service are classified in the 1st Levy, whilst those who are not fit, but who are nevertheless capable of bearing arms, are classified in the 2nd Levy. The other men are not examined; they are classified *en bloc* in the 1st Levy of the Militia, and will not be medically examined and classified in either of the two Militia levies until a later date fixed by the Commission, and prior to the 14th February of the year following.[1] Those men who do not attend this last summons and who, although unfit for thorough military service are nevertheless able to bear arms, are classified in the 2nd Levy of the Militia at the time of their first summons as Militiamen.

The Contingent for the whole of the territorial and naval forces in the districts of the Empire liable to the law of general recruiting was fixed by a ukase of the 8th June, 1903, at 320,732 men, plus 100 Caucasians for the recruiting of the horse artillery brigade division furnished by that population. The Cossack and Finland contingents are not included in these figures. The population of Russia after the census of 1897 being 129,211,113, and increasing at the rate of one million a year, amounted to over 135 millions in 1903; the number of men enrolled, mentioned above, thus corresponds to about ·24 per cent. The number of young men inscribed on the census lists was 1,161,120. The number of exemptions amounted to :—

For the 1st Category - - - -	232,987
,, 2nd ,, - - - -	203,626
,, 3rd ,, - - - -	57,869
Total - - - - -	494,482

[1] The operations of the Recruiting Commissions take place in the Autumn, and as a rule immediately precede the enrolment.

The Commissions had to examine 577,839 men, and took 317,138. By adding to this number 3,694 men who failed to appear, the number mentioned above, viz., 320,832, for the contingent is obtained. The results of this examination was as follows:—

1.	Respited for constitutional weakness -	89,159
2.	Taken on trial - - - - - - -	25,129
3.	Put back for a second medical examination-	6,560
4.	Utterly unfit for service - - - - -	64,087
5.	Classified in the Militia (2nd Levy) - -	74,472
6.	,, ,, ,, (1st Levy) - -	219,672

The Commissions had to call up the following from amongst men enjoying dispensations:—

In the 1st Category[1] - - - -	355	men.
,, 2nd ,, - - - - -	4,080	,,
,, 3rd ,, - - - - -	5,570	,,

The number of men posted to the Navy was 2,708, of whom 37 were not Christians.—*La France Militaire*, and *Revue Militaire des Armées Etrangères.*

SWITZERLAND.—*General Order for the IInd Army Corps Manœuvres.*—According to the *Allgemeine Schweizerische Militärzeitung*, which criticises certain dispositions, this order, which was published on the 20th August, is specially remarkable from those of preceding years, in that it abstains as far as possible from giving orders and instructions, which are already contained in various regulations and orders; only certain prescriptions concerning the medical, veterinary, and transport departments smack of the former cult for detail and occasionally settles points in matters which have not been laid down in high places, thus complicating the task of commanders already absorbed to the limits of their endurance by the command and administrative cares.

It is not necessary to revert to the programme itself of the manœuvres (JOURNAL for May, 1905, p. 593). On the afternoon of the 6th September the cavalry will be attached to divisions, probably to commence scouting in view of the manœuvres of division against division. The Maxim machine gun company receives 30,000 cartridges for the manœuvres, or 3,750 cartridges per machine gun. As the machine guns will take part in 5 field days, they will thus have 6,000 shots to fire per field day, or 750 shots per gun.

The Swiss journal mentioned above is of opinion that this ammunition should be carefully husbanded, as in war it would inevitably be prodigally expended, and it is therefore unnecessary to practise this wastage in advance in peace time. The more rapid the firing capacity of the weapon the more should education and training tend to provide the man with a second nature, so that he may be sparing of his ammunition. Thus only can the squandering of ammunition, inevitable in modern combats, be in some measure avoided.

As regards cavalry machine guns, cases when they might show their great value are not very numerous, as far as may be judged from their conduct at the Federal manœuvres, and their efficacious action is but of short duration; either their fire produces a great effect, and thus at once attains its momentary result, or else it has no effect whatever. Such is the opinion of the journal mentioned above.

The meat supply will be carried out during two days by stationary abattoirs in corps.—*Revue du Cercle Militaire.*

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[1] The men who fail to appear are as a rule replaced by men of the same religion, not taking exemptions into account, in case of necessity.

CORRESPONDENCE.

SPEED AND CONSUMPTION OF STEAM-SHIPS.

To the Editor of the JOURNAL OF THE ROYAL UNITED SERVICE INSTITUTION.

SIR, — In my previous paper on this subject I gave two methods of estimating the H.P. and consumption at different speeds from observations at one or more hourly velocities, one depending on an empirical formula, the other diagrammatic, and some of my experiences of their value from comparing theory with practice over more than a million and a half miles. I concluded by stating that I would rather trust the formula than the diagram, where there were few observations at the higher and lower speeds, especially for moderate variations from the usual speed of the ship, the I.H.P. and consumption for which ought soon to be accurately known. I will now endeavour to amplify this statement and give some reasons for my opinion.

To obtain data for either method requires the intelligent co-operation of a number of people. To weigh or measure the amount of coal consumed by a large steam-ship in 24 hours, and to burn it so as to keep an even pressure in the cylinders during the whole period, especially whilst the diagrams are taken, are no simple matters, and require all the care and supervision that the engineers directing can bestow upon them. Even then the results are not absolute, however closely they may approximate to finality. Consequently, just as the mean of a large number of chronometers will give the time more nearly than any single instrument, so the mean of a large number of diagrams and coal measurements will give the I.H.P. and consumption more accurately than any single set of observations could do. Now, when a ship is running voyage after voyage at very nearly the same speed, the observations obtainable at it are practically unlimited, whereas those at the higher and lower speeds can only be obtained occasionally.

Moreover, the cube of the speed and two-thirds power of the displacement rule was evolved from experiments and critical examination of the resistance of ships by many eminent naval architects, mathematicians, and engineers, extending back to periods when vessels depended altogther on sail power for propulsion. My own experience of it is to the effect that it is sufficiently accurate in practice, unless strained to extreme speeds.

Within these limits it is possible to find a constant for the engine consumption, from the actual coal burnt at the regular working speed, without knowing the I.H.P., because, as before stated, these quantities vary in the same ratio, and each is deducible from the other.

For suppose that at 15 knots per hour the ship burnt 125 tons for main engines and 8 tons per day for auxiliaries, of best Welsh coal. Let it be required to find an algebraic expression for the consumption within the limits of the cube of the speed rule.

Let engine consumption $= A V^3$, where A is some constant and V is the hourly speed—

$$\text{But at 15 knots } A V^3 = 125, \text{ whence } A = \frac{125}{(15)^3} = \frac{1}{27}.$$

$$\text{Then total consumption per day} = \left(\frac{V^3}{27} + 8\right) \text{ tons best Welsh coal}$$

† and miles per ton $= \left(\frac{24 V}{\frac{V^3}{27} + 8}\right)$, from which simple formula—

a table of miles per ton at various speeds can be made out, whence the quantity required for any distance can be obtained by simple division, to which must be added a suitable margin.

Of course, in strictness these figures will apply only to one displacement; but in the Navy this only varies in any particular vessel as the coal and stores are consumed, and it is not very different in the same steamer on a mail route, one voyage after another, or if there is any material alteration it can be allowed for.

In the Navy, they can often find time for experiments that financial considerations may forbid in mercantile vessels, though some of these latter, as well as men-of-war, may have opportunities of getting sufficient observations at extreme speed, as well as at very low and intermediate speeds, to construct an accurate diagram, when the H.P. can be obtained by simple measurement for any proposed speed, independent of any formula, and the engine consumption deduced from it.

If the data are good enough, these are of course more accurate than the formula, because, strictly, there is only one point at which the cube rule holds good, though in practice the power of the speed changes so slowly that I believe no material error is introduced within the limits I have recommended—limits, again, which in strictness vary for different vessels, but in practice are very much the same in ships of similar class. An accurate diagram would show amongst other things how the power of the speed varied relatively to I.H.P. and consumption.

Having got the consumption for the main engines from the diagram and added the constant quantity for auxiliaries, the daily total for all purposes can be tabulated as before, and a table of miles per ton at each speed made out.

No matter which method be adopted of getting the miles per ton for all purposes, this factor furnishes the most expeditious method of arriving at the probable quantity of coal the ship will burn between any two ports at any proposed speed, or of deciding whether her bunker space is sufficient for that speed, and if not, what is the highest speed her coal endurance would permit.

With the diagram as with the formula, the H.P. may be omitted if desired by dividing the vertical or ordinate scale so as to represent cwts.

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† Or miles per ton for main engines—

$$= \frac{24 V \times 27}{V^3} = \frac{648}{V^2}.$$

If this factor is used to find the coal required for main engines, a separate estimate must be added for auxiliaries, according to the anticiplated length of the voyage.—J.F.R.

per hour, or tons and decimals of a ton per hour, or tons per day, keeping the horizontal or abscissa measurements to represent the speed, either in knots per hour, or knots per diem, from the lowest to the highest probable daily run, increasing the distances by 10, 12, or 24 miles, as most convenient.

Yours faithfully,

J. F. RUTHVEN.

Orient Steam Navigation Co.'s s.s. "Orontes."

Erratum to paper in October No., 1904.—The word "only" has been omitted, and requires inserting after the fourth word in the eighteenth line on p. 1180.—J.F.R.

NAVAL AND MILITARY CALENDAR.

AUGUST, 1905.

1st (T.) Japanese Military Administration in Sakhalin was proclaimed.

4th (F.) H.M.S. "Hannibal" paid off at Devonport.

7th (M.) French Northern Squadron arrived off Cowes to return visit paid by Atlantic Fleet to Brest.

8th (T.) Report of the Commission on Food Supply in time of War was issued.

9th (W.) His Majesty inspected French Fleet. French Fleet proceeded into Portsmouth Harbour.

" " The first meeting of the Russo-Japanese Peace Conference took place at Portsmouth, New Hampshire.

11th (F.) H.M.S. "Ariadne" paid off at Devonport.

" " H.M.S. "Amphitrite" paid off at Chatham.

12th (Sat.) Launch of first-class battle-ship "Kansas" at Camden (New Jersey) for U.S. Navy.

14th (M.) French Fleet left Portsmouth.

16th (W.) H.M.S. "Ocean" paid off at Devonport.

" " H.M.S. "Mars" paid off at Portsmouth.

" " The Japanese bombarded Lazareff, at the mouth of the Amur.

19th (Sat.) The Tsar's manifesto and scheme for a National Assembly was published.

20th (S.) Announced that Lord Curzon resigned the Viceroyalty of India. Lord Minto was appointed his successor.

23rd (W.) H.M.S. "Kent" paid off at Chatham.

25th (F.) H.M.S. "Centurion" paid off at Portsmouth.

29th (T.) Peace terms were agreed to between Japan and Russia.

FOREIGN PERIODICALS.

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NOTICES OF BOOKS.

The Crisis of the Confederacy. By Captain CECIL BATTINE, 15th King's Hussars. 8vo. Longmans, Green & Co. London and New York, 1905.

The study of the war between the Confederates and Federals has long been urged by some of our most distinguished military writers of the present day as being one of the most instructive in all history. From every point of view its lessons were of the utmost value to our people. It illustrated the value of sea power, the far-reaching influence of war on commerce—the Federal blockade of the Southern coasts having had the effect of well-nigh starving the operatives of Lancashire; it illustrated the capabilities of enthusiastic volunteers, and it proved that the influence of incompetent politicians can be far more disastrous to nations than

all the skill and bravery of the most resolute foes. It constantly upset the calculations of those system-bound critics, whose lack of imagination and ignorance of the forces of human nature only renders their microscopic study of the details of war the most deceptive. It set forth, to the amazement of Americans, the eternal truth of the old motto, that if you wish peace—even peace at home—you must prepare for war.

The prolongation of the struggle was as much due to the folly of the political cliques of Washington as to the calm strategy of Lee and the energetic manœuvres of Jackson and Stuart.

Neither side was prepared for the terrible struggle. The Northern folk had assumed that the march to Richmond would be a mere military promenade, it spite of Sherman's warning that they might as well expect tc put out a conflagration by a penny squirt. But though rudely deceived, first by the defeat of Bull Run (July 21st, 1861), and bewildered by the failure of McClellan in 1862, and the sequence of repulses in the Shenandoah Valley in the same year, and by the feeble results of the victory of Antietam, and by the disaster of Fredericksburg in December, their resolution was undaunted. They never dreamed of yielding an inch either to their brilliant foes or to the jealous and spiteful intrigues of European charlatans. They had their reward—the successes of 1863 compensated for the gloom of 1862. Their persistence not only saved the Union, but started the reunited country on a career of prosperity without parallel, and so developed their manhood, as well as their resources, that before the century had passed the United States became a world Power, and soldiers of Lee as well as of Grant led the forces of America to the ruin of the Colonial Empire of Spain.

The interest of such a war is perennial. Hence we find that skilled critics of Oyama and Kuropatkin base theories as to operations between the Yalu and the Hun-ho on a study of the operations between Richmond on the James and Washington on the Potomac. The Japanese have experienced the benefits and limitations of sea power as against land power operations on a large area, even as did the Federals.

In 1898, the late Colonel Henderson published his "*Stonewall Jackson and the American Civil War*," a book which won for him a world-wide reputation as a profound military authority, and the author of "*The Crisis of the Confederacy*" admits that he sought inspiration from the pages of Henderson. But it is due to Captain Battine to say that he has found leisure to write a brilliant treatise in the midst of his duties to the troopers of the famous and gallant 15th Hussars, *clarum et venerabile nomen*, celebrated for many a martial feat, which illustrated the skill and daring of our British cavalry in advance and retreat from Villers en Cauchie to Vittoria, and from Waterloo to Afghanistan. He is to be congratulated on his own work, which cannot fail to add distinction to his regiment as well as himself, and it has already been the subject of favourable comment in the German Military Press.

The selection of the Gettysburg campaign (July, 1863) was a happy thought. Henderson stopped at Chancellorsville (May, 1863), where Hooker ("Fighting Joe") was repulsed and Jackson was killed. Lee then was foiled in his second strategic counterstroke north of the Potomac, which was met at Gettysburg by Meade. The next day Vicksburg fell to Grant, "the Mississippi rolled unvexed to the sea," and the tide of war swept on to Chickamauga and Chattanooga, and thence, in 1864, to Atlanta and Savannah. Sherman cut off Richmond from all the Southern States from Carolina to Louisiana. Sheridan cleared the valley of the Shenan-

doah, and in a series of tremendous conflicts during May and June, step by step Lee was driven back by Grant to Richmond, which, in spite of a most obstinate defence, he was obliged to abandon in April, 1865; but every avenue of escape south or west was closed, and the capitulation of Lee's Army at Appomattox Court House finished the war.

"In general, the scheme which Grant set himself to carry out," writes Captain Battine, "was the same which McClellan had devised two years earlier, but he brought more energy and concentrated purpose to its execution. Better than McClellan, he understood the importance of time and the need to harass the enemy's forces every day of the week. He therefore planned a simultaneous advance of all the Federal forces in the first week in May, after concentrating them as far as possible, and after providing for the retention or occupation of localities vital to the final result. Thus, while Sherman's Army of the West was reinforced to the greatest possible strength, two army corps, numbering together thirty-four thousand troops, under Butler, were left on the banks of the James to detain Confederate forces there, or to seize the enemy's capital if it was too incautiously denuded of troops. Sigel, with a corps of seventeen thousand men, was to press up the Shenandoah Valley so as to deprive the enemy of its resources, which had hitherto proved so useful to him. Sufficient garrisons were left to hold conquered territory, and all the remaining might of the North was thrown into the attack upon Lee's hitherto invincible Army. The enemy's field forces formed the immediate objective of the Federal attack, which was so directed against his capital and its railway communications as to compel the Confederate Armies to fight in the field chosen by their adversaries. For Sherman, Sigel, and Butler, the line of advance was dictated by imperious local circumstances; but to Grant's Army there offered itself a wider choice of roads to Richmond.

"The principal strategic advantage of the South in the coming contest would be its interior position. The danger constantly existed that the Confederate Government would place Lee in supreme command of all its forces, and that, while the Army under Sherman was held at bay, a concentration of forces would be hurled upon the Army of the Potomac. To put the utmost possible pressure upon all the enemy's troops, and not to relax it for a day, was the most obvious method to prevent this concentration. Before he was summoned to Washington, Grant had committed himself to the opinion that the Army of the Potomac should be conveyed by sea to the banks of the James, there to begin its next campaign. Whether he deferred to the well-known wishes of the Government, that Washington should be covered by a direct advance, or whether he was converted to the opinion that it was best to attempt the ruin of Lee's Army by the overland route, is uncertain. It may, however, well be believed, after the proofs that Lee had given of his offensive capacity, that Grant was afraid to leave him for two or three weeks to work his will in some daring expedition. The road to victory still lay over the ruin of Lee's Army, and that might be accomplished more easily sixty miles from Richmond than in the near neighbourhood of the Confederate base."

Had Grant appeared in Virginia with full powers in March, 1862, the war would have been over by April, 1863.

It is only possible to indicate some of the main points of Captain Battine's most clear and judicious history. He has done wonders in one volume, which can be commended most cordially to every student of history. It is far more to the point, and conveys much clearer information than either the "Battles and Leaders of the American Civil War" or Scribner's series

of histories of the sections of the war, though all these are very valuable in their way.

Officers like Captain Battine should receive the utmost encouragement from both the War Office and the public. Our people neglect history and geography to a scandalous degree, and in this respect the Army only reflects the nation; but the evil results to the Army are more striking. Captain Battine sees clearly that history and history alone is the great teacher of strategy and tactics, which must be studied in peace time, or learned by bitter experience in needlessly prolonged wars.

Throughout his book our author illustrates the capacity for war displayed on the side of both the North and the South, and the operations of 1862-64 offer a fine field for the contemplation of the strategist, while the tactics were as desperate and as costly in human life as the fiercest encounters of the Napoleonic Wars. The horrors by the banks of the Rappahannock and Rapidan, year after year, rivalled the scenes at Eylau and Vittoria, and anticipated the worse encounters at Liao-Yang and at Mukden; but there was no *débâcle*—not once in these three terrible years. Each defeated general always made good his retreat, each side determined "never to submit or yield, and what is more, not to be overcome." At the Wilderness, Grant's losses were 13,000 killed and wounded. The Federals out of 20,000,000 of people put 1,000,000 in the field in the fourth year of the war, lost 300,000 dead, and expended £1,000,000,000 of our money on preserving the Union. Yet these people had ridiculed the costly armaments of Europe only a few years before.

In Henderson's work, all the great cavalry actions, raids, and turning movements were by Confederates, but in 1863-4 the Northern Government and soldiers recognised the value of cavalry. In the latter year Grant insisted on getting the best man procurable as a cavalry leader; and, as Captain Battine says: "The spring campaign against Hooker made it clear to Stuart that the enemy had at last grasped the importance of cavalry, and that he must spare no effort if he would retain the supremacy which he had won."

It is astonishing that our authorities have not taken the cavalry lessons of this Civil War more to heart. What would not the Japanese have given any time since May, 1904, for a body of troopers such as were led past Lee by Stuart, June, 7th, 1863? (See p. 118.)

The action of cavalry in the future is one of the topics now most eagerly discussed by tacticians; and Captain Battine, as a cavalryman, has naturally devoted some attention in his work to the cavalry work of the two Armies. It is quite a mistake to suppose that the troopers of Sheridan and Stuart were merely mounted infantry or infantry on horses. The Confederate troopers were skilful horsemen before the war, and though they could fight well on foot, they were mounted rifles rather than mounted infantry. They had rifles and revolvers, but they could also charge with sabres. The author gives the following interesting description of the cavalry action which ended the adventurous career of General J. E. B. Stuart, the best cavalry officer ever *foaled* in America:—

"While the masses of contending infantry had been fighting desperately at Spottsylvania, the cavalry corps led by Stuart and Sheridan had also waged war against one another on a separate field. Grant had yielded to the temptation of detaching his cavalry against the enemy's communication—an evil course, which is always attractive when sounder methods fail. On May 9th Sheridan concentrated his three divisions in rear of his Army, and rode round the eastern flank of the lines of

Spottsylvania, crossed the North Anna, and took the road to Richmond. Stuart was promptly informed of the march, and started in pursuit with a brigade of Hampton's division, while FitzLee was sent by another route to cover the capital. Stuart quickly overtook the rearguard of the huge Federal column and hung on to its division, spreading across the country and doing considerable damage. Six miles north of Richmond, at Yellow Tavern, on the 11th, the Northern Horse encountered FitzLee's men, dismounted, in position, and a lively action took place. The Confederates gained some advantage by a mounted charge on the Federal brigade, which was still in fours on the road; but they were heavily outnumbered. Stuart, with Gordon's Brigade, came into action against Sheridan's rear, compelling his enemy to face in two directions, and pressing him with his usual courage and energy. The attack gave time to the Militia at Richmond to man their works; but this delay was dearly purchased, for Stuart himself was fatally wounded while personally fighting in the front line, and Gordon, his brave brigadier, was killed outright.

Thus fell the celebrated leader of the Confederate Cavalry. Unvarying good luck in action had made him careless of personal risk. His plumed hat, broad yellow scarf, and fine figure marked him out so conspicuously that it is remarkable he survived four years' fighting. Few soldiers have had a more distinguished career. To Stuart belongs the glory of inaugurating a new system of cavalry tactics. His brilliant leading of the Second Corps at Chancellorsville, after Jackson's fall, proved his capacity of commanding infantry also. His luckless raid in the Gettysburg campaign will ever be considered his one great failure. With such able subordinates as FitzLee and Hampton to lead the cavalry, he would probably have been better employed as Lee's Chief Staff Officer in that campaign."

Captain Battine stops as to detail at the Wilderness, May, 1864, but the events between that date and the fall of Richmond will furnish him with ample materials for two more volumes of at least as much interest as that which has already given him a high place among the British military writers of our generation.

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Happy he who lives to finish all his task. The words, "I have done my duty," sealed the closed book of Nelson's story with a truth broader and deeper than he himself could suspect. His duty was done, and its fruit perfected. Other men have died in the hour of victory; but for no other has victory so singular and so signal graced the fulfilment and ending of a great life's work. *Finis coronat opus* has of no man been more true than of Nelson. There were, indeed, consequences momentous and stupendous yet to flow from the decisive supremacy of Great Britain's sea-power, the establishment of which, beyond all question or competition, was Nelson's great achievement; but his part was done when Trafalgar was fought. The coincidence of his death with the moment of completed success has impressed upon that superb battle a stamp of finality, an immortality of fame, which even its own grandeur scarcely could have insured. He needed, and he left, no successor. To use again St. Vincent's words, "There is but one Nelson." (Mahan's "Life of Nelson," p. 397.)

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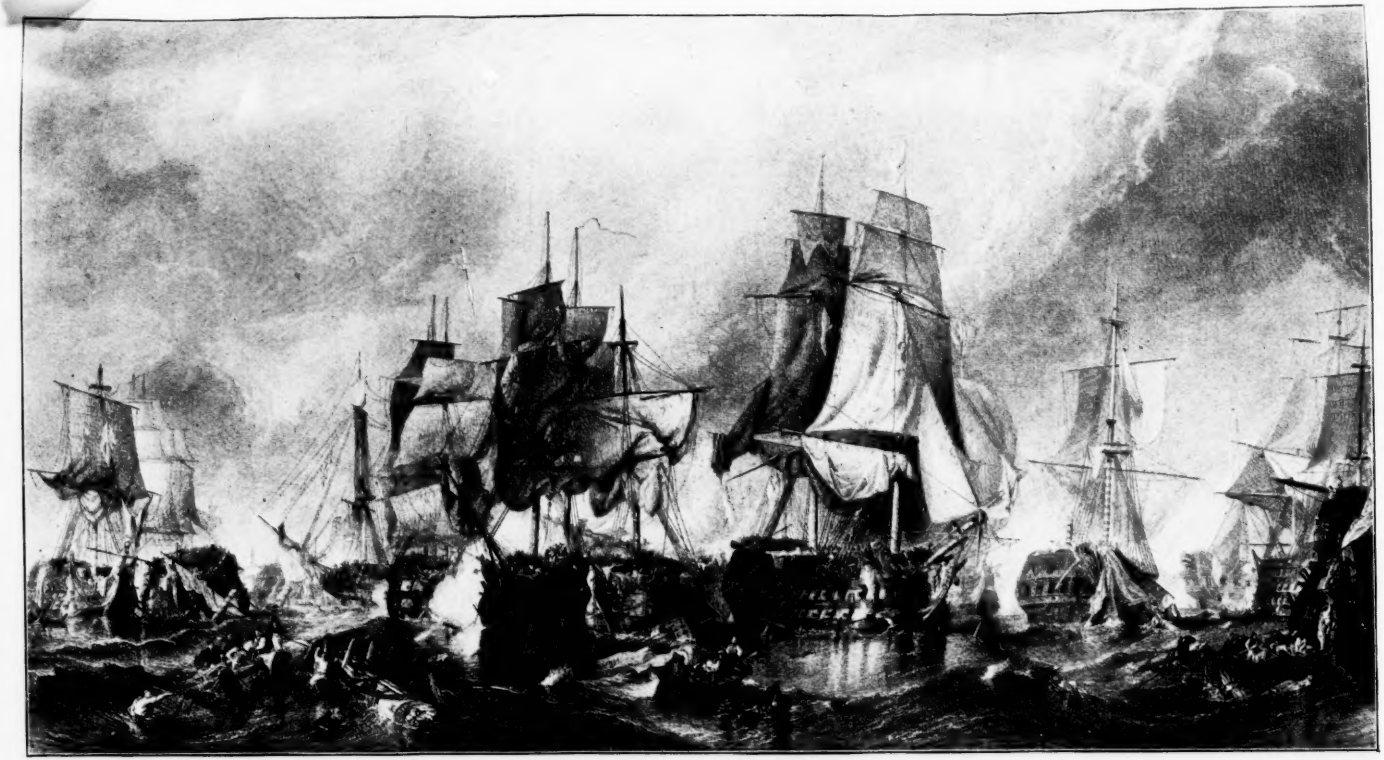

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